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A COST-EFFECTIVENESS ANALYSIS OF SELECTED NATIONAL FAMILY PLANNING PROGRAMS

A Report on Phase II of the Penn State-USAID Population Project
"Cost-Benefit and Cost-Effectiveness Evaluation
of Family Planning Programs"
Contract No. AID/csd-1884

The Pennsylvania State University
Department of Economics
University Park, Pennsylvania

December 1969

Please Note the following changes in the Report,

"A Cost-Effectiveness Analysis of Selected National Family Planning Programs".

(1) Page 3, line 26 - To the list of persons who aided the project in Korea, add: Dr. John A. Ross.

(2) Page 4, line 1 - To the list of persons who aided the project in Tunisia, add: Dr. A. R. Mezlini.

(3) Page 10, line 11 - Interchange the words "direct" and "indirect".

(4) Page 19, equation (2) - Should read

$$P_n = \frac{C_n}{100} + .0769\ O_n + .5\left[V_n + TL_n + I_n\right] \text{ etc.}$$

This changes also slightly the accompanying text.

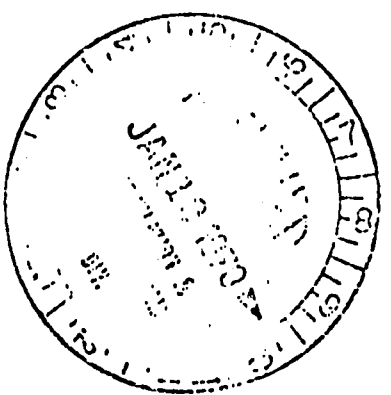
(5) Page 50, line 3 - Change "one billion dollars" to "one million dollars".

(6) In Chapter IV, the Korean Program, a serious overstatement consistently occurs regarding the actual inputs to the program in 1968 from USAID. A very large amount was authorized and in some cases obligated in 1968 by USAID for the Korean Program but only very small amounts actually arrived. These funds were for vehicles and equipment and amount to as much as $2,000,000.

Thus, in Chapter IV, Table IV (page 46), Table VI (page 48), Table X (page 58), Table XII (page 60), and the text table on costs per CYP (page 50), are all incorrect for category (2) USAID-supported spending by this amount. Similar changes must be made in the accompanying text, as well as in the summary tables in Chapter IX.

The result of this correction is to reduce the 1968 cost per CYP by about one-third, bringing it somewhat more in line with earlier years.

(7) Page 164, line 15 - Change the sentence "Perhaps 100 condoms does not prevent a birth but only half a birth on the average." to "Perhaps 100 condoms do not provide a full couple-year of protection but only half a year on the average."



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Chapter I

Background and Introduction

This is a report on Phase II of the "Cost-Benefit and Cost-Effectiveness Analysis of Selected National Family Planning Programs" (Contract No. AID/csd-1804) undertaken by the Economics Department, The Pennsylvania State University. Phase I, reported on in October 1968, presented an analytical review of the literature of cost-benefit as applied to population control programs, with special emphasis on the evaluation of benefits. Several alternatives approached were discussed in that report and a modified neo-classical economic growth model constructed and explained as an illustration of how the benefits of a population control program could be estimated in any national economic context.

The present report covers Phase II of the contract, which was to:

> Phase II - This phase shall involve a detailed study of actual costs and benefits of on-going programs. The Contractor shall collect, catalogue and analyze the cost and performance data generated to date from actual programs in such areas as Taiwan, South Korea, India, Pakistan, Tunisia and other countries. Data will be obtained from responsible officials and advisers of the various population programs underway throughout the developing world.

This phase of our work aimed at a financial and budgetary overview of family planning programs in the developing areas. We were interested in obtaining some answers to such general questions as: how much do programs cost per unit of output? What is the range of these costs per unit among the countries in our group? Are there any very clear time trends in the costs per unit? What can be said about the explanations of these inter-country differences in cost per unit? What is the relative importance of foreign assistance in financing these programs? What are the major functions or items for which these programs use their resources? How do these expenditures patterns compare among countries?

The report presents our findings in reply to these questions. Numerous other and incidental and related points are also discussed in passing. Our conclusions are, we feel, plausible and highly suggestive even if not completely definitive. We have, we also feel, demonstrated the validity of this approach and shown the program benefits which can be obtained by extensions and further

applications of this work.

The full report which follows contains eight chapters. First, Chapter II is introductory and methodological; it presents and discusses the basic cost-effectiveness model employed in the study. The index used of output, the Couple-Years-of-Protection, is also explained and limitations and shortcomings discussed frankly. Chapters III through VIII which then follow are detailed reviews of the national programs of India, Pakistan, Korea, Taiwan, Chile and Tunisia. In each case, the main emphasis of the chapter is the financial side of the program and also the program results achieved thus far. No effort is made to present a full-blown picture of these programs or to discuss the many interesting clinical or administrative lessons to be learned. Most of these have already been well-documented and are known to anyone with any interest in such matters. Less well-documented and studied have been the financial and budgetary aspects of the programs and this is the main point of our chapters. For each program then, we construct a "sources and uses" financial picture for each year. The "sources" are analyzed with respect to where the funds come from and also the nature of the inputs. Insofar as possible the agency or administrative level responsible for actual disbursement of the funds is noted also. Expenditures are then analyzed using a set of five types of direct spending (salaries and allowances of all field staff; contraceptive supplies; transport and other equipment; training of field workers; other direct expenses) and five types of indirect spending (administrative expenses; evaluation and analysis; education and information; research and foreign training; other indirect expenses). The program "output" measured in terms of the Couple-Years-of-Protection-Index is then presented and finally some conclusions are reached concerned the cost per unit (per CYP) of output. The six programs are nearly all organized and reported on using different cost and expenditure categories and a large part of each of these chapters is merely explanation of the procedures required to arrive at a comparable set of data

for all six countries.

Finally, the IX and last chapter of the full report, presents a comparative overview of the group of programs, looking particularly at the total cost, the sources of the finance, the relative levels of outputs achieved, the cost per unit of such output, and the inter-relationships among these factors. Various appendices covering technical points and statistical sources are also attached to the main report.

Acknowledgements

A good many people assisted, directly or indirectly, in the completion of this report. The principal members of the staff assigned to this project by the Pennsylvania State University and their responsibilities were as follows: Warren C. Robinson, Project Director, responsible for basic methodological framework, for chapters on India, Taiwan and Tunisia, plus final conclusions; David E. Horlacher, Research Associate, responsible for India chapter, as well as parts of the methodological chapter and the final conclusions; William J. Kahley, graduate assistant, responsible for chapters on Chile and Korea; Messrs. John Sumansky, Richard Uris and Zafir Ahmed, all graduate assistants, performed the compilation and calculation of the data and also assisted in the writing of some sections; Dr. Paul Simkins joined the project briefly in connection with the gathering of data in Chile while Dr. John Riew performed a similar function in Korea.

The list of field persons who assisted this project in countless ways even though it was not their responsibility is very long indeed. In Pakistan: Dr. Mrs. Nafis Sadik; Col. S.A. Jafarey; Dr. Harald Pedersen; Mr. Khalil Siddiqui. In India: Mr. D.N. Chaudhri; Dr. S.N. Agarwala; Mr. Morrie K. Blumberg; Mr. Peter King. In Korea: The late Paul Hartmann; S.M. Keeney; Oliver D. Finnigan III; Miss O.K. Lee; Dr. Yong-wan Kim; Dr. D.W. Han, Dr. T.I. Kim. In Taiwan: Mr. S.M. Keeney; Mr. George Cernada; Dr. L.P. Chow; Dr. S.C. Hsu. In Chile: Dr. D.N. Avendaño, and Dr. Bruce Herrick. In Tunisia:

Mr. Leonard Kornfeld; Dr. Naseeb Hamaidan; Mr. Herman Marshall; Miss Elizabeth Mueller; Dr. A.M. Daly; Mr. M.S. Seklani. Other persons located in New York and Washington were also important and these included: Mr. Clarkson Hill, Miss Eugenia Gale, Dr. Clifford Pease (Population Council, New York); Dr. John Meier (Rockefeller Foundation, New York); Dr. Ophelia Mendoza (IPPF, New York); Mr. Oskar Harkevy and Mr. Davidson Gwatkin (Ford Foundation, New York). Our indebtedness to the members of the population and program evaluation division of the USAID Population Service in Washington is also a deep one. Finally many persons were good enough to offer helpful comments on various sections of the report and these included: Ronald Freedman, Gavin Jones, Paul Schultz, Paul Demeney, Les Corsa, George Simmons, Ansley J. Coale, George Zaidan, and Jean Benneth.

Chapter II

Some Conceptual and Methodological Notes

The Logic of Cost-Effectiveness

Cost-benefit analysis aims at comparing present value of all benefits expected to be generated by a program with its present costs. The benefit-to-cost ratio is in effect a measure of the total "returns" per dollar spent. Such analysis has gained much favor in recent years for analyzing and comparing alternative public investment projects, and some preliminary attempts to apply the logic to family planning programs have been made as well.

The two greatest stumbling blocks to cost-benefit analysis in practice are: (a) the quantification in monetary terms of the benefits, many of which are likely to be indirect and difficult to measure; (b) the question of how to weigh future benefits against present benefits; or, more precisely, whether a discounting procedure is to be employed and, if so, what discount rate is appropriate. Cost-effectiveness avoids these difficulties by, in effect, assuming the benefits and then looking at the relationship between program imputs and program performance. Cost-effectiveness, in other words, asks only: "How much does it cost to obtain each unit of the benefit-creating program output and what explains variations in this unit cost?" The same approach is sometimes referred to as "Program and Performance Budgeting and Review" - PPBR - or just Performance Budgeting and, as such, has been tried at least experimentally in numerous U.S. government agencies in recent years. Thus, cost-benefit can select among various programs all of which generate some type of social benefits. Cost-effectiveness can select among various approaches to the achievement of any given program. For purposes of our analysis of national family planning programs, the benefits are assumed and we are measuring and analyzing the costs of creating these assumed benefits.

However, some important conceptual and also statistical problems remain and these have to do with the definition of our units of input and also our measure of program achievement or output. It is the purpose of this paper

to discuss these points, to indicate briefly our judgement about the pro's and con's of various possible measures and to justify the approach on which we have finally settled.

Definition and Measurement of Inputs

The inputs into a family planning program consist of resources expended - the services of personnel (both full and part-time, skilled and unskilled), the use of capital equipment (clinics, vehicles, medical and publicity equipment), and the direct commodities and supplies used (IUD's, condoms, oral pills, etc.). These are in the terminology of economics, exhaustive expenditures since they are resource - using and preclude the use of the same resources for any other purpose. There may also be transfer expenditures which involve the raising and spending of funds but do not use up resources. Bonuses or fees paid to clients (but not doctors or midwives) are good examples. Funds are taxed or borrowed away from the general population and then paid to a certain group in exchange for their agreement to participate in the program. The clients have larger money incomes, the other taxpayers slightly less. Resources, however, have not been re-allocated. (However, to the extent that the receiving group has a different expenditure pattern than the paying group, an impact on relative prices and resource allocation may in fact be felt. But this is incidental to the transfer and, in any case, probably slight.)

The list of inputs to the family planning program will it seems clear, be a long and heterogeneous one: some of the time of highly-skilled medical people or top government administrators, the services of a semi-skilled jeep driver, the production cost of IUD's, the incentive payment paid to a man having a vascetomy. How, then can we define, much less measure, these inputs in terms of some common denominator? Put in a broader context this is nothing more than a special example of the aggregation problem familiar in economic analysis. That is, the problem of summing up into a single aggregate disparate sub-components with uncertain and shifting weights. In general, there is no

"correct" solution to the problem but several possibilities exist.

First, one can pick out a key input and then relate units of this to units of output. Analyses of family planning programs which work in terms of "full-time family planning workers" per client are an example. There seems to be an implied judgement that "personnel" is the key inputs and other inputs are available in some fixed proportion to personnel. Such an assumption seems dubious. Also, the aggregation problem exists even here since "full-time family planning workers" will include with equally weight a highly-trained OBGYN physician and a field worker possessing only rudimentary skills and training. Moreover, what about part-time workers - physicians who do insertions on a fee basis or merchants who sell contraceptives for a share of the price? Should they or should they not be included as well?

Another approach sometimes suggested is to take the establishment as the unit of input. Thus, analyze a program in terms of output per clinic or per mobil van. The problem of homogeneity arises here too. Are all clinics alike? What about the other inputs - field workers, publicity, etc. - which also bear on how much output any one establishment will produce even though they are separate from the van or clinic itself?

A third approach is to avoid the problem of homogeneity by summing up all inputs - personnel, establishment, and so on - weighted by the money prices attaching to them. Aggregation then becomes possible in the same way that apples and oranges can be added when we know the price of both. OBGYN men receive a higher pay than field workers with minimal training and thus when we sum these by cost-values we reflect this fact. The full-time vs. part-time problem solves itself too since the fee paid part-time workers presumably reflects their marginal contribution.

Thus, by "inputs" we mean all money costs entering into the accomplishment of the given program. Measuring costs in this fashion seems fairly straightforward but, in fact, a good many conceptual and statistical difficulties

still arise.

(1) The Joint-Cost Problem

Where the program is set up as a separate administrative and budgetary entity costs would seem obvious. In other countries family planning is merely part of a more general maternal and child-health or rural public health program. In the latter case (and inevitably to some extent also in the former case) "joint-cost" problems arise. When field workers or clinics are doing family planning as well as general MCH work, how much of the cost of such workers and clinics should be allocated to family planning alone?

Similar problems arise for administrative and other overhead expenditures which support many programs, only one of which is family planning. An especially difficult case is that of the handling of research and evaluation. Very frequently expensive, highly sophisticated research projects are undertaken in conjunction with a family planning action program. There are "spillovers" for the program, but the major output of the research spending may be a product called "research", not a product called "family planning", however this latter is measured.

(2) Multiplicity of Financial Sources and Support

Private groups or family planning associations often play a crucial early role in the programs. The budgets of the non-government groups must be included in the overall consolidated budgets of the program. Unpaid volunteer labor services and contributions in kind also are not uncommon, and, these, too, must be included at fair market value. Similarly, non-local components must be included at fair market value. Similarly, non-local components must be included at their fair value. Included would be training (foreign fellowships), supplies (condoms from SIDA, vehicles from UNICEF, pills from USAID, for example) and personnel - foreign advisors included - to the extent that these personnel have a direct involvement in the program. If we are honest about it, we must admit that foreign advisors typically do a lot more than merely

"advise" and, if we ignore their salaries and expenses, we would be missing an important input. It is also true that these foreign advisers are more often than not involved in the evaluation and research end of the program. As noted above, it may make sense to treat research and evaluation as a special type of indirect program input, only some part of which is actually charged to the program itself.

Where the country is a federal political entity and the program involves expenditures at state (or provincial) and local levels as well as at the national budgetary level, these components must be included too. Collecting such data is no easy task and the joint-cost problem arises at each level of government.

(3) Non-Program Inputs

The program inputs aim at producing certain outputs. These outputs also can be measured in various ways and we turn to this next. But, some outputs which seem to be program-generated may in fact be the result of parallel but non-program activities. To be specific, fertility rates may fall because of resources expended by a national family planning program. But they may also be falling partly because of resources being expended by individual couples independent of the program. Thus, there is an important inter-relationship between our definition and measurement of "costs" or "inputs" and our measuring of "performance" or "outputs".

(4) The Problem of Timing of Expenditures

Knowing the budget allocated for family planning - total funds and resources allocated or earmarked for the program - is only the beginning. These funds may or may not all be spent in the given period. They may be spent quickly - in the main early in the accounting period - or there may be a bunching of actual payment of bills late in the period in which the liabilities are incurred. This is the familiar budgetary problem of disbursements vs. accruals and it sets limits on our ability to deal with the shorter-term time periods -

months, for example - rather than quarters or years. There is the related but still different problem which arises from the lag between program expenditures (however figured - cash or accrual) and actual accomplishment or performance. The "pipe line" for supplies or services may be long, and money spent today may generate output several months from now. In general, we must be concerned with units of input when these actually enter into or are used up by the program and have taken "actual" expenditures rather than authorizations or allocations. In practice, however, there were many problems.

Direct Versus Indirect Costs

The most commonly-used distinction made among various types of costs in economic analysis is "direct" (or "fixed") versus "indirect" (or "variable"). The former category is also called "overhead costs" and refers, in general, to costs which are not directly related to the level of program activity or intensity. Such costs as rent, administrative salaries or capital equipment are relatively fixed once the general scope and scale of the program have been decided upon. Other costs, such as field expenses, contraceptive supplies, transport, and so on, vary as does the level of the program's intensity and output.

It can be argued that the distinction between direct and indirect costs may not be important in practice. Fixed costs may be also planned on the basis of a given target and that such fixed costs increase roughly in proportion to the target set - or, in other words, "there are negligible economies of scale," as Dr. George Zaidan has put it [Appendix III, Reference 18]. Within variable costs, a further distinction between "initial" costs, and "time-dependent costs exists. The former are costs which are uniquely associated with reaching or supplying one particular client. These costs will not be related to how long the client remains in the program. "Time dependent" costs are outlays which occur and recur as a client stays with the program and which would end upon the client's departure. These "initial" costs would be

exemplified by the IUD insertion fee, and "time-dependent" costs by the monthly outlays to resupply females on pills.

This logic suggests that should the program either fall short of or substantially exceed its target then costs per unit of achievement would be much higher or lower than planned. Thus, the relationship between "initial" costs and output could vary and could result in the familiar U-shaped cost curves per unit of output for the program. The "initial" costs thus become a special type of fixed cost.

A more concrete, empirically-meaningful program problem is related to this. Most program inputs are <u>recurring</u> in the sense that they represent a payment which must be made periodically so long as the service or input is required. Nearly all personnel, and all commodity supplies fall into this category. However, other expenditures once incurred create a capital asset or stock which then emits a type of input for the program stretching over some several time periods. A vehicle, or audio-visual equipment or building are examples of such <u>non-recurring</u> expenditures. It can be argued that for accounting and also for economic analysis such non-recurring expenditures should be established as assets, their estimated life of useful service computed, and an annual amount of value-contributed to the program estimated. Only this amount (which can be called depreciation) would then be charged off in any single year and the total expenditure would be reflected only over the course of the asset's entire useful life to the program. This distinction may also be put as <u>capital</u> versus <u>current</u> spending.

Now, while desirable, such an approach to non-recurring costs is difficult for several reasons: (1) Considerable uncertainty exists as to the "useful life" of many of the assets involved. Western-based depreciation tables are no guide to the useful life of such capital equipment under conditions encountered in developing nations. (2) The difference between "non-recurring" (capital)

items and others is not always very clear cut in practice. How would one handle uniforms for field workers, bicycles, billboard posters, or the training of staff? Also in a very real sense, nothing is truly "non-recurring"; it is durable over some time period and must then be replaced or renewed. But the same can be said of the so-called "recurring" expenditures too. Field workers are paid once a month and having been paid need not be paid again for a month. Thus, the essential difference between the two types of expenditures is one of degree and length of the appropriate time period, nothing more. (3) The percent of total spending represented by this "non-recurring" is likely to be small in any case since only buildings, vehicles and specialized equipment are clearly and relatively unambiguously non-recurring.

On balance, we feel that the distinction between Direct and Indirect costs is still meaningful. The initial versus time-dependent distinction suggested is useful primarily as a way of analyzing still farther the indirect costs but cannot replace the basic categories of direct and indirect. The recurring versus non-recurring distinction would cut across the direct-indirect categories (some direct costs are recurring, some non-recurring, etc.) and would represent a desirable refinement. However, it would also complicate greatly our analysis and does not, in fact, seem very important.

Expenditure Categories Employed

Throughout the chapters which follow we employ the following ten categories for purposes of analyzing the expenditure patterns of our selected family planning programs:

Direct (Field Expenses)
(1) Wages, Salaries and all Allowances
(2) Contraceptive Supplies
(3) Vehicles and other equipment
(4) Training of field staff
(5) Other direct costs

Indirect (Overhead Expenses)
(6) Administration
(7) Analysis and Evaluation
(8) Information and Education
(9) Research and Foreign Training
(10) Other indirect costs.

These categories are rather broad and by no means the ones which one might chose if one had complete free choice. (We return to the question of an "ideal" set of expenditure categories in our conclusions to this report.) They represent what was feasible given the even broader, and also more detailed, categories available in the country program statistics. It should also be noted that in many cases rather arbitrary allocations had to be made. Thus, a line between "Research" and "Analysis and Evaluation" can be drawn on the basis of whether a given project or grant is aimed at a direct, short-run pay-off for the program. But, in actual practice it is very difficult. Category (1) - "Wages, Salaries and Allowances" is regretably broad and includes "incentive payments" and "per diem" allowances as well as regular salary payments. It simply was not possible to breakout these separate items for all our six countries. The same holds for lumping "Vehicles and Other Equipment" into one category - category (3).

Measuring Outputs

The problem of what constitutes "output" for a family planning program is related to, but not identical with, the problem of how to measure the "success" of a program. On this latter point a substantial literature has grown up. It has been suggested that the "success" of a program can be judged: (a) administratively - are officials in place and doing as they are supposed to; is money being spent; are reports accurate and timely, etc. - or (b) operationally - is some final "output" being generated? These two indexes are related but not necessarily coincident. A scheme could be an administrative success but be so poorly designed or so ill-fated as to have little operational impact. Cost-effectiveness analysis obviously is concerned with the second kind of "success", although the conclusions it reaches will be valuable for the first type of evaluation also.

Even within the second, or operational, sort of "success indicator" there are several possibilities. First, success can be in terms of some

measure of the actual fertility reduction which can be attributed to the program. Allowance must be made for whatever change might have occurred even without the program, and, as has been shown these problems can be quite tricky. Still they are, conceptually at least, manageable. Births prevented is perhaps the best output measure possible, but the most meaningful and also the most difficult to obtain or construct accurately. Second, outputs can be measured in terms of the specific units of the services generated by the program - IUD's inserted, sterilizations performed, and so on. In the terminology or economics these are really intermediate goods supplied by the program to the clients who then actually "produce" the true final output - births prevented. Now, for some types of contraceptive methods - sterilizations especially - the relationship between the intermediate services generated by the program and final services can be ascertained rather accurately once age, parity, marital status, mortality expectation, and other details about the clients are known. For IUD's this is less easily the case, due to uncertainty about retention rates, but is still possible. However, for "conventionals" - condoms, foam, and so on - the "use-efficiency" factor looms so large that, even if the actual number of couples employing the technique is known, the relationship to births prevented is still difficult to estimate. Moreover, in most programs the statistics on conventionals will refer to total supplies distributed or sold, and the other crucial elements - number of couples actually using these supplies and frequency of use per couple - are not known.

The "Substitution Problem"

More fundamental yet is the problem arising from the fact that a program may in practice end up encorporating or "substituting" for a previously-existing family planning effort by private households. The matter can be generalized as follows: (1) In a typical population some groups will be contracerting even in the absence of any publically-supported program. These groups may be using everything from relatively-inefficient "folk" methods

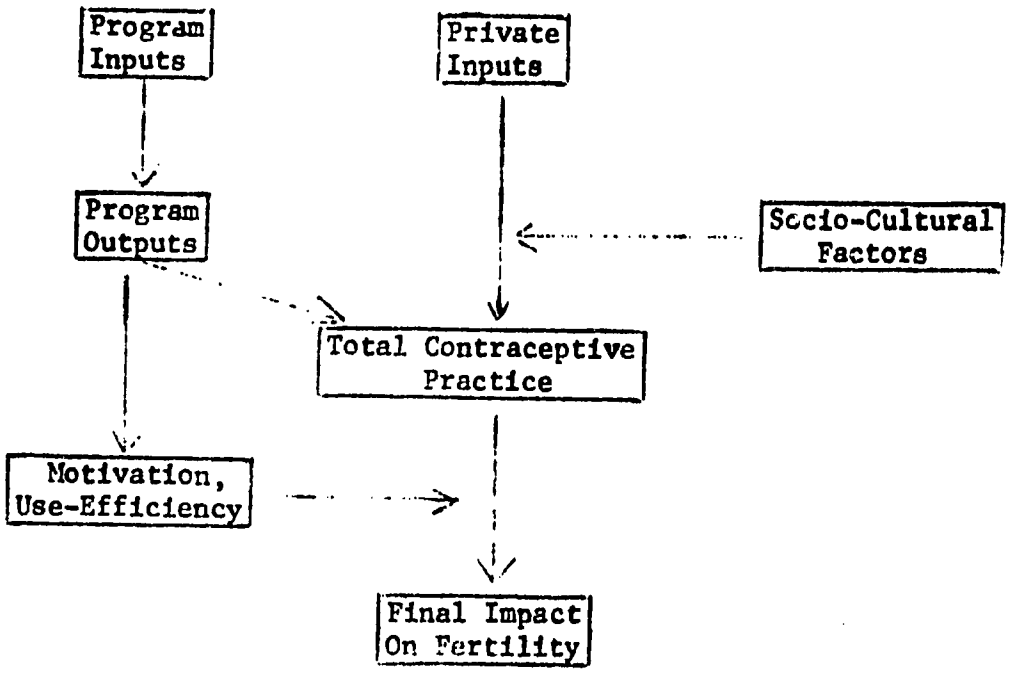
such as coitus interruptus to sophisticated biological and chemical methods such as the pill, purchased through normal commercial channels. Thus, there will already be a "program" but it will be an unplanned free-market program with no central direction and no redistributional implications. (2) When a public program is launched it almost certainly will have the effect of "substituting" for some of this previous private effort. That is, the most likely candidates for IUD's or sterilizations will be couples already contracepting by less-effective means. Similarly couples using conventionals can now obtain supplies more cheaply through participation in the program. The limits to this process are when the program accomplishes no net increase in actual family planning effort - that is, all the apparent program "output" is simply "substitution";or when the program reaches an entirely different group and is entirely a net addition to previous family planning efforts - where in other words there is zero "substitution". One may assume that the typical situation in a developing country will fall between these extremes. That is, even before the public program some groups will have fertility below average and perhaps overall rates will have begun to fall thanks to private efforts. The public program then will "substitute" to some extent but probably also will increase contraceptive efficiency of even long-time contraceptors as well as reaching some new groups. On both these scores the impact of the program will be to accelerate the fertility decline.

This problem clearly exists no matter what measure of "output" is employed. However, there are implications for the choice of what "output" unit to employ for evaluating a program.

The "substitution" problem can, in fact, be ignored if by "output" we mean the specific and narrow accomplishment by a program of certain quantitative objectives. These accomplishments will be intermediate services rather than final or ultimate "success" (births prevented). These are the specific "outputs" of the program and the relevant ones since it is the efficiency of the

administrative program we are interested in evaluating.

The relationship of public and private sectors, final and intermediate services, can be visualized as follows:



Thus, on balance, we argue that output for cost-effectiveness analysis of family planning should be defined as those specific services or supplies generated which can be directly related to the inputs used in the process. The services will most typically be intermediate as contrasted to final accomplishments (or "successes") but this should not trouble us. The relationship between efficiency in generating the intermediate services and achievement of the final "successes" is a separate, equally interesting but more complex question.

It should be also stressed that we are not arguing for a purely administratively-oriented measure of output. Workers in place, percentage of budgeted funds actually spent, or other such administrative criteria would be yet another way of looking at "output" and that is not the way we are advocating. Our measure aims at judging actual quantitative program "outputs" even though these are not also units of final "success".

The Couple-Years-of-Protection Index

We employ an index of intermediate outputs, the "Couple-Years-of-Protection". The concept of the Couple-Years-of-Protection Index was developed by Dr. Samuel Wishik in connection with the Pakistan family planning program [Appendix III, Reference 17]. This measure was designed to make possible a district-level comparison of performance even when the "mix" of the various methods differed from district to district.

The method, to summarize quickly, is to allow one couple-year of protection for: (1) every 12-months lived by a fecund, currently-married male or female who has been sterilized; (2) every IUD in place for one year; (3) each total of conventionals (condoms, foam, etc.) and orals distributed which (given coital frequency) would be enough to provide contraceptive protection for one calendar year. The "CYP" index can then be computed for districts or other sub-national areas. In discussing the Index Wishik notes the following limitation:

> It is obvious that the number of couple-years did not indicate the number of different couples involved, but was merely the sum total of time of contraceptive practice of all couples who practiced at all, whether for shorter or longer periods. It must also be emphasized that the Couple-Year-of-Protection Index focuses on the assumed period of practice of contraception and in no sense carries implication concerning the use-effectiveness of the contraceptive practices or the number of births prevented by those practices. Those are matters for further derivation with the help of CYP data that will be the subject of another paper, built around the concept:
>
> P . e . F → B
>
> A given amount of contraceptive practice (P), as measured in CYP's, of certain levels of use-effectiveness of the contraceptive methods used (e) among women of certain fertility expectations in the absence of contraception (F) will lead to the number of births prevented (B) by that amount of contraceptive practice. [Appendix III, Reference 17, pages 3-4]

For our purposes, then, we compute our Achievement Index (Couple-Years-of-Protection) as:

$$(1)\quad CYP_n = \frac{C_n}{100} + .0769\ O_n + (V_n + TL_n)7.5 + I_n 2.5$$

In which: C is total conventional contraceptives distributed; V is vasectomies; TL is tube-ligations; O is oral pill cycles distributed; and I is IUD's inserted. The parameters assumed are: coital frequency of 100 per year; the average number of years an IUD is retained by a married, fecund female (allowing for reinsertions) as 2.5; the average number of fecund years remaining to a woman before she dies, is widowed, or reaches menopause after she or her husband has been sterilized is assumed to be 7.5 years; since it requires 13 cycles of oral pills per calendar year, the total of oral cycles distributed must be divided by 13 to reach "couple-years" and this is the same thing as multiplying by .0769.

This technique assumes that the use-effectiveness of IUD's is 100 percent. As Wishik explains in assuming that 100 condoms or 13 oral cycles equal one CYP the same assumption of 100 percent effectiveness is being made. The justification for such an assumption is, as indicated above, that our measure is of intermediate output, with this "output" then being filtered through "use-effectiveness" to reach "prevented-births". (This also ignores the problems raised by social abortions and also by program statistics which report output in terms of "clients" or "visits", as IPPF installations frequently do. Where such complications arise in our output index we discuss the problem in our accompanying text.)

An important distinction must also be made between current achievement and current prevalence as measured by this approach. For conventionals, achievement and prevalence are virtually the same thing, but not so for IUD's or sterilizations for which there is a substantial carry-over from period to period.

Our Index is a measure of current achievement of the program, including that achievement which will be realized in the future. It is not a measure of the current level of protection being afforded to the population (or prevalence in Mishik's terminology) which must take into account carry-over of past achievements into the present as well as some part of the current achievement. The Prevalence Index would be computed, for example, as:

$$(2)\quad P_n = .5\left[\frac{C_n}{100} + .0769\ O_n + (V_n + TL_n) + I_n\right] + \Sigma_o^n \left[(V + TL)\ (m)\right] + \Sigma_o^n \left[(I)(m)(A)\right]$$

In which: A is an annual survival rate for IUD wearers from attrition by reason of pregnancy, expulsion and rem vals; m is the probability of a female who has been inserted or sterilized or whose husband has been sterilized surviving as a currently-married fecund female from the year of the operation or insertion to the present; year t_o is assumed to be the start of the program, and this can be any number of years in the past; current insertions and so on are assumed to be spread out evenly over the present year so that prevalence by reason of current achievement is equal to current sterilizations, insertions and conventional plus oral usage times .5. This formula, then, gives an approximation of the current prevalence as contrasted to current achievement.

Note that current achievement measures changes in prevalence during the period in question but it also includes changes in future prevalence as well. The relationship between prevalence and achievement may be seen conceptually as a matrix with time of insertion, sterilization or contraceptive distribution along the vertical axis and time during which the couple is protected along the horizontal axis. Summing row-wise gives achievement in each year (row) while summing column-wise gives prevalence of protection in each year (column). Thus, achievement in Year 1 would include elements of protection extended in Years 1 through n, while prevalence in Year 3 would include some part of the achievements of Year 1 through 3.

Thus, our Index of achievement measures total output future as well as

present and is thus more meaningful in assessing cost per unit than a prevalence index which would treat a sterilization as being the same "output" as supplying a couple for a year with condoms. On the other hand, since an accomplishment is partly unrealized as yet, we can make any easy comparison with the total target population of the program. Our CYP cannot, in other words, be expressed as a proportion of Couple Years at Risk in the present year. However, should such an exercise be thought useful our data and Equation (2) above would make it a simple matter.

Inter-Country CYP Comparisons

As indicated above, the calculation of CYP Index for any given program is relatively simple. Making a comparison of the level of output achieved by different national programs is also relatively simple. However, there are also some new problems which arise in the inter-country comparisons.

(A) The CYP calculation procedure outlined above "weights" IUD's by average retention period in years or fractions thereof, and sterilizations by the average number of years the female (who has been sterilized or whose husband has been sterilized) will remain alive, married and fecund. These "weights" (2.5 years and 7.5 years respectively in our procedure as outlined above) may, in fact, vary from one population to another with the resulting consequence that the number of CYP's generated by one IUD inserted or sterilization performed will also vary. Thus, two programs which had inserted exactly the same numbers of IUD's for exactly the same total cost yet if the females reached in the one program retained their IUD's on the average slightly longer than the females reached in the other program the CYP's generated might differ markedly. Now, if one were satisfied that such a difference in retention periods were, in fact, related to program efficiency or performance - educational activities, careful screening of clients, medical follow-up, etc. - then the difference in CYP's would be meaningful for evaluating the two programs. But, it also seems clear that in many cases the length of the retention period might

be related to underlying socio-economic and cultural factors - health of the clients (their ability to tolerate bleeding), motivation to contracept effectively, availability of other methods, etc. - not related to program efficiency. Thus, one can argue for "standardizing" the setting factors influence on CYP's and making possible a comparison of costs and CYP's generated in which the differential impact of any of the variables intervening between inputs and CYP-outputs is eliminated. In our procedure we do this by using the same "weights" for all our countries for IUD retention period, sterilizations, and so on. Now, this could, in theory, result in understatement or overstatement of the true CYP's generated by a program. In fact, we find that the relevant "weights" do not vary much from program to program. The "weights" of 2.5 years for the mean IUD retention period and 7.5 as the sterilization's duration is drawn from the experience of the Pakistan Program.

(B) The final comparison of costs in relation to outputs must be accomplished in a common currency unit to be meaningful. We have used, for rather obvious reasons the U.S. Dollar. However, as is well known, such inter-country value comparisons are fraught with difficulty. The official rates almost certainly are not equilibrium or market-clearing rates and the degree of disequilibrium will differ from country to country. "True" costs of the programs will thus be obscured. There is, in general, no "correct" solution to this problem but our study is no more invalid on these grounds alone than is any other inter-country study.

(C) The CYP index loses sight of the differing program "mixes" - IUD's vs. conventionals vs. sterilizations, etc. - which may exist. This, in turn, obscures the possibility that differences in aggregate cost-output relationships observed between two programs may reflect different underlying technologies in the two. Thus, an IUD program may simply have, other things being equal, a different cost-output relationship than a conventionals program. Thus, the program "mix" may be another important intervening variable.

This problem, however, can be dealt with even if only qualitatively. We work with six countries. Two of these - India, Pakistan - give conventionals a major role while the other four are by and large IUD programs. Thus, some comparison of the impact of the program's "mix" of methods is possible. In any case, we can keep this problem in mind and minimize the danger of being mislead.

(D) Relative factor costs will differ among countries no matter what overall exchange rate between the currencies is employed. The cost per CYP in one country may be above that of another country because government wages are higher in the first country. This, in turn, may be partly offset by productivity differences. That is, the higher salaried government physician may work harder and insert more IUDs than his lower priced counterpart in a second country. However, these wage-productivity differentials will affect the cost per CYP regardless of the exchange rate used.

The Unit of Time Employed

In theory the approach outlined above could be followed using time period for purposes of recording and comparing costs and outputs. Relatively short time periods - months or quarters - have the advantage of revealing any annual cycle in performance and also in giving a larger number of observations for regression-type analysis of variations in cost and performance. However, the shorter the time interval the greater the problem of distinguishing between allocations, expenditures, and impact. That is, the lag between each of these steps in the budgetary process may be short enough to ignore if one uses annual data but very crucial in interpreting monthly or quarterly results. The problem of how to treat capital-type items is also directly related to the time interval employed.

In the present study we attempted an analysis using quarterly data on costs and outputs. However the quarterly variations were so great and so inexplicable that one could only conclude that the quarter was not a meaningful

time interval for analysis. The programs themselves very clearly think of the budget "year" as the relevant time period and allocation or recording of allocation by months or quarters is fairly arbitrary. The problems of leads and lags in spending also seems a real one.

Thus, we work with annual data. Accepting the fact that even the longer time interval does not eliminate the problems discussed above, we feel it does at least minimize them.

Conclusions

On balance, we conclude that we can for purposes of cost-effectiveness analysis of family planning programs employ as our input annual total expenditures (or costs incurred) by the plan and all related activities broken down between direct and indirect expenditures. For output we will employ a measure of the annual intermediate services rendered, "Couple-Years-of-Protection."

Both have limitations. Other approaches to measuring both inputs and outputs are possible. But these definitions seem best for our present purposes.

Chapter III

Taiwan (Republic of China)

Introduction

The family planning experiment conducted in the city of Taichung in 1963-64 set the stage for the beginning of an Island-wide family planning action program in Taiwan in 1964. The program proceeded as a cooperative venture of the Joint Commission on Rural Reconstruction (JCRR) and the Provincial Department of Health (PHD). A private group, the Maternal and Child Health Association (MCHA), was also formed and a resident office of the Population Council was set up. A third group, The Sino-American Foundation for Economic Development (SAFED), served as a means for channeling into the program counterpart funds. A Population Studies Center, to undertake research and evaluation as well as general demographic studies, was also established in 1964 with Population Council support.

By mid-1964 the Economic Planning Board had agreed to allocate about 60 million New Taiwan Dollars for a five year FP program. Most of these funds were, in fact, USAID "second generation" counterpart monies (the interest accumulated on local currency owned by USAID as a result of its substantial U.S. surplus commodity programs in Taiwan in the 1950's).

The Taiwan program was one of the first major programs launched anywhere in the world and the first to stress the IUD. It has generally been considered also the first "success" in that fertility rates have begun a sharp decline at least partly due to the program.

Sources of Financing

The financing of the Taiwan program has been relatively simple with the two main sources being the JCRR ("second generation" counterpart funds) and the Popualtion Council. However, the actual disbursement of these funds has lead to a rather complicated institutional structure.

Tables I and II presents a summary, by year and source of the funds

flowing into the Taiwan program. As is indicated the basic Taiwanese source has been a series of grants from the Sino-American Fund for Economic Development to the Joint Commission on Rural Reconstruction, government of China. These represent the "second-generation" counterpart funds. The other important local source of funds has been the Provincial Health Department which provides the basic health and MCH network within which the program has operated. Other funds have also flowed into the program from the private Maternal and Child Health Institute and the Red Cross. The China Family Planning Association and the Maternal and Child Health Association have played roles as channels through which particular programs or projects were undertaken.

Table I by no means includes all Population Council grants made in Taiwan. Numerous other Population Council funds have flowed to university medical researchers but were excluded since it was judged that these were not aimed primarily at promoting the action program. These would probably amount however to only another $10,000 to $15,000 per year. Similarly research grants made to the University of Michigan Population Studies Center have not been included even though there have certainly been positive "spillovers" from their research for the program itself. These omissions may be offset by our inclusion of all expenditures by the Taiwan Population Studies Center since some of the more purely demographic research undertaken by this group is perhaps only distantly related to the action program.

Following suggestions made by knowledgeable field personnel we have included only a share of the salary and none of the travel or per diem of the Population Council's Resident Representative in Taichung. This recognizes the fact that only a portion of his time is spent on the Taiwan program. Similarly, we have excluded all funds earmarked for orientation and training of visitors to Taiwan from other family planning programs. In 1968 plans were launched to establish a large center for such purposes. However, in the earlier years some such expenses were covered out of the regular budget of the

Table I

Total Funds Available for Family Planning in Taiwan by Source*

1964

Population Council (U.S. Dollars)	Grant Number	Amount	Spending
Advisers			$ 10,008
Population Council Far East Office			6,000
Support of 1964 Action Program	T 6418	$36,500	36,800
Supplies of Material and Equipment	T 640.43	4,000	3,008
Continuation of IUD Services in Taichung	T 640.27	4,275	4,275
To Taiwan Population Studies Center			30,000**
Taichung Study	D 6339	16,500	15,000
Medical Followup in Taichung	M 6392	25,845	25,845
Consultation and Services at Health Centers	D 6380	4,860	4,860
Fellowships			6,136
			$141,932

* Fiscal year for JCRR/SAFED grants are from November 1 to October 31 while Population Council grants are recorded in calendar years.

** Between the years 1 July 1962 and 30 June 1964, $60,886 were allocated for the Center and approximately 50% or $30,000 was credited with being spent in 1964 and the remainder in 1965.

1965

Taiwan Sources (NT Dollars)*	Source	Distribution	Spending
JCRR/SAFED (65-F-441)	11,216,790		
PHD	2,667,394	10,590,184	
MCHI		3,294,000	
	13,884,184	13,884,184	13,204,775
To TPSC (66-C41-F448)		1,000,000	1,000,000
			14,204,775

Population Council (U.S. Dollars)	Grant Number	Amount	Spending
Advisers			$ 10,070
Population Council Far East Office			7,000
Extension Budget	T 65.10	$53,400	47,675
To Taiwan Population Studies Center for Expansion	D 65.92	25,160	12,580
To Taiwan Population Studies Center			30,886
Medical Followup of Taichung IUD Project	T 65.106	17,700	17,700
IUD Supplies	T 640.54	850	825
Medical Followup	M 64.93	25,000	25,000
Travel Grants	T 640.47	700	700
	T 640.57	700	700
IUD Supplies	T 640.21	1,436	1,436
	T 640.58	1,500	1,248
Fellowships			16,735
			$172,555

* See accompanying text for explanation of these agency abbreviations.

1966

Taiwan Sources (NT Dollars)	Source	Distribution	Spending
JCRR/SAFED (66-F-452)	12,800,000		
PHD	438,480	7,702,420	6,728,685
MCHI	373,480	849,180	817,814
MCHA		4,184,000	3,917,897
Red Cross	200,000	884,360	743,594
China Family Planning Association		192,000	192,000
Total NT $	13,811,960	13,811,960	12,399,990
To TPSC (66-C41-F448)		1,000,000	1,000,000
			13,399,990

Population Council (U.S. Dollars)	Grant Number	Amount	Spending
Resident Adviser			$ 7,200
Population Council Far East Office			9,000
Health Education Adviser	T 66.52	$16,500	11,550
Extension Budget	T 66.3	62,500	
		5,725***	63,800
For Evaluation and Training to	D 65.138	82,980*	
Taiwan Population Studies Center		12,580**	38,540
To Family Planning Association Taiwan for Building Fund		2,500	2,500
Medical Followup	T 66.103	21,500	6,500
Special Travel Grant	T 66.036	650	650
	T 67.084	2,250	2,250
Fellowships			9,694
			$151,684

* Grant made in 1965.
** Unpaid portion of 1965 Grant to TPSC.
*** Unpaid portion from 1965.

1967

Taiwan Sources (NT Dollars)	Source	Distribution	Spending
Main Program			
JCRR/SAFED (67-F-464)	12,000,000		
PHD		6,098,400	5,032,562
MCHA		5,608,800	5,062,624
Family Planning Association		292,800	292,800
	12,000,000	12,000,000	10,387,986
Village Health Education Program			
JCRR/SAFED (67-F-471)	5,000,000		
PHD	438,480	4,192,620	3,936,802
MCHI	242,712	789,712	
Red Cross	200,000	898,860	569,309
	5,881,192	5,881,192	4,506,111
To TPSC (67-C41-F460)		1,000,000	1,000,000
			15,894,097

Population Council (U.S. Dollars)	Grant Number	Amount	Spending
Resident Adviser	T 67.8	$50,000	$ 11,130
Health Education Adviser	T 67.91	11,000	4,950
Population Council Far East Office			11,000
Extension Budget	T 67.2	99,600	82,832
Medical Followup	T 66.103*		15,000
To Taiwan Population Studies Center	D 65.138		25,960
Special Travel Grant	T 67.088	1,600	1,600
Fellowships			14,495
			$166,967

* Grant made in 1966 - $15,000 unpaid balance.

1968

Taiwan Sources (NT Dollars)	Source	Distribution	Spending
JCRR/SAPED (68-F-475)	16,000,000		
Provincial Government	3,192,000		
PHD	388,480	11,940,720	10,833,665.66
Chinese Red Cross	200,000	767,960	(767,960)
MCHA		7,071,800	7,056,793.85
	19,780,480	19,780,480	18,658,419.51
To TPSC (68-C41-F474)		1,000,000	1,000,000.00
			19,658,419.51

Population Council (U.S. Dollars)	Grant Number	Amount	Spending
Resident Adviser	T 68.13	$ 35,000	$ 11,000
Health Education Adviser	T 68.15	25,000	20,313
Medical Adviser	T 68.14	35,000	19,705
Population Council Far East Office			12,000
Extension Budget and Medical Followup	T 67.127	132,250	130,380
To Taiwan Population Studies Center	D 65.138		21,042
Special Travel Grant	T 68.03	4,291	4,040
Fellowships			11,389
			$229,869

Table II

Total Funds Available to Taiwan Family Planning Program by Years
(US Dollars)

	Population Council	Taiwanese Sources*	Total
1964	$141,932	-	$141,932
1965	172,555	$355,125	527,680
1966	151,684	333,750	485,434
1967	166,967	397,350	564,317
1968	229,869	491,475	721,344

* NT Dollars converted to US Dollars at 40 to 1.

Population Studies Center and it is difficult, if not impossible to sort them out.

Tables I and II are on a calendar-year basis even though the JCRR fiscal year is November 1 to October 31 and the main JCRR/SAFED Grants have typically been for these time periods also. In at least two cases, however, the grants were December 1 - November 1, making them even closer to the calendar year basis. Population Council's main grant to the program (the "extension budget" as it is called) is calendar year. The TPSC year is July 1 to June 30 but since the amounts indicated in Tables I and II are relatively fixed (the NT Dollar grants from JCRR) or a division of a three-year grant into annual amounts on a more or less arbitrary basis (the Population Council Dollar grant), annual spending would probably not be affected by shifting the timing of any given grant.

Finally, there seems general agreement among persons connected with the program that a substantial additional input to the program comes in the form of services to the program by regular personnel of the Provincial Health Department who are nevertheless primarily engaged (and paid) to do other sorts of work. "Free" or unbudgeted use of PHD facilities falls into the same category. All in all, it has been estimated that such invisible inputs may run as high as several hundred thousand NT Dollars a year. We allow for this by adding in a flat lump sum amount to our indirect costs (category (10), "Other Indirect Costs").

To repeat then, Table I gives our best estimates of funds flowing into the program from all sources. Table II presents a grand total summary of these estimates.

Spending by Categories

Next we turn to the disposition of these funds by type of expenditure. The effort we have made to break down total spending according to our ten major categories (discussed above) is presented in Table III. However, a large

Table III

Total Spending From All Sources on Family Planning in Taiwan, by Major Types

	1964		1965		1966		1967		1968		Total Spending 1964-1968	
	Thous. NT $	Percent	Thous. NT $	Percent	Thous. NT $	Percent	Thous. NT $	Percent	Thous. NT $	Percent	Thous. NT $	Percent
Direct												
1) Salaries and Allowances	1,425.	25.2	10,181.	50.8	10,426.	53.8	9,205.	50.0	15,309.	55.6	46,546.	51.1
2) Contraceptive Supplies	120.	2.1	96.	0.5	100.	0.5	100.	0.5	1,040.	3.8	1,456.	1.6
3) Vehicles and Equipment	-	-	466.	2.3	780.	4.0	590.	3.2	824.	3.0	2,660.	2.9
4) Training of Field Workers	-	-	1,092.	5.4	213.	1.1	43.	0.2	244.	0.9	1,592.	1.7
5) Other Field Expenses	30.	0.5	430.	2.1	576.	3.0	911.	4.9	1,184.	4.3	3,131.	3.4
	1,575.	27.8	12,265.	61.1	12,094.	61.7	10,849.	58.8	18,601.	67.6	55,384.	60.7
Indirect												
6) Administration	747.	13.2	929.	4.6	1,239.	6.4	1,660.	9.1	2,582.	9.4	7,157.	7.9
7) Analysis and Evaluation	1,500.	26.5	3,069.	15.3	3,367.	17.4	3,230.	17.5	1,892.	6.9	13,058.	14.3
8) Publicity and Education	388.	6.9	1,064.	5.3	1,276.	6.6	525.	2.8	2,613.	9.5	5,866.	6.4
9) Research and Training	1,339.	23.7	2,040.	10.2	1,122.	5.8	1,665.	9.1	1,296.	4.7	7,462.	8.2
10) All Other Indirect Costs	101.	1.7	680.	3.4	285.	1.5	500.	2.7	567.	2.0	2,133.	2.3
	4,075.	72.2	7,782.	38.9	7,289.	37.7	7,580.	41.2	8,950.	32.4	35,676.	39.3
Grand Total	5,650.	100.0	20,047.	100.0	19,383.	100.0	18,430.	100.0	27,550.	100.0	91,060.	100.0

number of somewhat arbitrary judgements were required in order to fit the actual expenditures into these summary categories. Let us now explain these on a step-by-step basis.

(1) JCRR Funds

As noted the Taiwanese currency support for the program has come from annual grants by SAFED to the JCRR which then distributed the funds to some private groups as well. The Provincial Health Department has also supplied funds to the program. A consolidated budget (and subsequent audit reports) is prepared annually by JCRR for all these funds. Drawing on these data, we have then regrouped the indicated total NT Dollar spending as follows in terms of the ten-category breakdown of expenditures developed for our study:

JCRR Expenditure Categories	Allocated to Our Category
A.) Provincial Health Department	
(1) Salaries of Nurses	(1)
(2) Travel and per diem	(1)
(3) Uniforms for Nurses	(3)
(4) Training expenses	(4)
(5) Vehicle maintenance	(3)
(6) Village health education	(8)
(7) Teaching and education materials	(8)
(8) Office maintenance	(6)
(9) Rent of staff dormitory	(6)
(10) Miscellaneous	(10)
B.) Maternal and Child Health Institute	
(1) Salaries for Nurses	(1)
(2) Travel and per diem	(1)
(3) Vehicle maintenance	(3)
(4) Office maintenance	(6)
(5) Food allowance for trainees	(1)
C.) Maternal and Child Health Association	
(1) IUD subsidy to practitioners (30 NT $ per insertion)	(1)
(2) Expenses	
(a) Salary and allowance	(1)
(b) Travel and per diem	(1)
(c) Printing expense	(8)
(d) Miscellaneous	(5)
(3) Special studies	(7)
(4) Mobile teams subsidies	(1)
(5) Teaching and educational materials	(8)
(6) Contingency	(5)
(7) Medicine	(2)

JCRR Expenditure Categories	Allocated to Our Category
D.) Red Cross, Taiwan Chapter	
(1) Salaries for Nurses	(1)
(2) Travel and per diem	(1)
(3) Uniforms	(3)
(4) Educational materials	(8)
(5) Miscellaneous	(5)
(6) Expenses for processing IUDs	(2)
E.) China Family Planning Association	
(1) Salaries for part-time doctors	(1)
(2) Salaries for nurses and drivers	(1)
(3) Travel and per diem	(1)
(4) Vehicle and Maintenance	(3)
(5) Gasoline expenses	(3)
(6) Medical supplies	(2)
(7) Equipment and facilities	(3)

(II) Population Council Funds

The other major program input has been the series of large Population Council grants made annually to the JCRR (the so-called "extension program grant"). The expenditure categories employed in reporting on these grants have varied slightly from year to year. However, the below list is representative and indicates also how these items were allocated among our ten expenditure categories:

Extension grant Categories	Allocated to Our Category
A.) 1. Books and Journals	(9)
2. Materials for loops	(2)
3. Teflon inserters	(2)
4. Audio-visual equipment	(3)
5. Films	(3)
6. Equipment and instruments	(3)
7. Oral contraceptives	(2)
B.) 1.1 Journal, Taiwan's Health	(8)
.2 Health education materials	(8)
.3 Mass media education program	(8)
.4 Survey on results of mass media	(7)
.5 Publications of materials in English	(10)
2.1 Training of selected doctors	(4)
.2 Full-time OBG supervisor	(4)
.3 Travel and per diem	(4)
.4 Gasoline tax	(3)
.5 License and insurance on cars	(3)
.6 Car repair and maintenance	(3)

Extension grant Categories	Allocated to Our Category
2.7 Pilot sterilization program	(5)
.8 Mobile doctor program (2 teams)	(5)
.9 Research on IUD acceptance	(7)
.10 Bonus for field workers	(1)
.11 Office maintenance	(6)
.12 Training of field workers	(4)
.13 Bi-monthly meeting of supervisors	(5)
.14 Processing coupons from program	(5)
.15 Office equipment and facilities	(6)
2.2 Subsidies for staff	(1)
2.3 Inter-Province FP Siminar	(7)
2.4 Subsidy	(1)
2.5 Salaries for Staff	(1)
2.6 Miscellaneous and contingency	(5)

The other major Population Council inputs was in support of the so-called "medical follow-up" study of the IUD program. This has all been categorized as "research" (category (9)). Likewise all the expenditures of the Taiwan Population Studies Center, (both funds coming out of the annual JCRR grant and funds from the Population Council grants series of three-year grants) were considered to be "analysis and evaluation", category (7). The remaining items shown on Table I mostly categorize themselves. Population Council Advisers are considered "administration"-category (6)- as are expenses of the Council's Far East office. IUD's and other supplies are Category (2), while miscellaneous travel grants were put in Indirect, category (10).

These allocations then provide us with the data needed to regroup Tables I and II along total expenditure by categories. Table III presents these results.

The trends in the percentage allocation of the total funds are interesting and not too unexpected. The total "indirect" spending is relatively large to begin with but falls with time, rises again slightly in 1967 then starts falling again. On the average direct spending is over 60 percent of the total

and category (7) (Analysis and Evaluation) is the largest, reflecting the large evaluation input of the TPSC.

Sources versus Expenditures

The relationship between the total expenditures thus measured and our earlier summation of total resources flowing into the program is of some interest and the following Table presents this comparison:

	Resources Available		Actual Reported Spending	
	(thous. NT $)	(thous. US $)	(thous. NT $)	(thous. US $)
1964	5,680.	142	5,650.	141
1965	21,125.	528	20,047.	501
1966	19,480.	487	19,383.	484
1967	22,574.	564	18,430.	461
1968	28,859.	721	27,550.	689

It can be noted that for the first three years of the program the correspondence is quite close. The relatively large gap between inputs and expenditures in 1967 is explained in large measure by a large item of "suspense account" on the accounts of the main Population Council Grant (T67.2). This "suspense account" represents money which has, in fact, been paid out but which for various reasons has not yet been charged to the appropriate account. If this "suspense account" were added to spending, the totals would be very close in 1967 also. The same problem, on a smaller scale, arises in 1969. By and large, however, for the entire period, we are able to account for, as spending for particular end-purposes, most of the resources coming into the program.

Output of the program

The achievements of the family planning program are presented in Table IV. The program statistics commonly used as "performance" measures - IUD's inserted, total sterilizations and Pill Cycles distributed - are presented as are also the Couple-Years-of-Protection implied by these measures. (CYP's are computed using the same formula discussed in earlier sections of this

paper.) The program is as already noted mainly an IUD program. Sterilizations were experimented with and then dropped, and orals introduced only in 1967 to reach chiefly females who discontinue using the IUD. The CYP results reflect this emphasis.

Table V presents the unit costs of the program over the period using the expenditure data of Table III and the CYP's of Table IV. Costs per unit, as measured in this way, fluctuate over time, rising in 1965, falling, then rising again in 1968. However, these fluctuations should perhaps not be taken as too meaningful. The fluctuations are not very large especially between 1965 and 1968, and are undoubtedly affected by the necessarily rather arbitrary time-wise allocation of some of the expenditures. In general, the picture which emerges is one of lower rather constant costs per unit once the program is under way, with a slight tendency for costs per unit to rise and fall as new capital inputs or indirect spending occurs.

Table IV

Measures of Output of Family Planning Program in Taiwan

	IUD's Inserted	Total Sterilization	Oral Pill Cycles Distributed
1964	46,000	-	-
1965	99,253	-	-
1966	111,242	656	-
1967	121,053	573	109,834
1968	123,670	-	213,728

Couple Years of Protection Implied

	IUD's	Sterilization	Orals	Total
1964	115,000	-	-	115,000
1965	248,132	-	-	248,132
1966	278,105	4,920	-	283,025
1967	302,632	4,298	8,446	306,930
1968	309,175	-	16,436	325,611

Table V

Cost Per Couple-Year of Protection in Taiwan

	1964	1965	1966	1967	1968
Cost (Thousands NT Dollars)	5,680	21,125	19,480	22,574	28,859
CYP's	115,000	248,132	283,025	306,930	325,611
Cost Per CYP					
(NT Dollars)	49.4	85.2	68.8	73.5	88.5
(U.S. Dollars)	1.20	2.13	1.72	1.84	2.21

Chapter IV

Republic of Korea

Background

Since 1961 the government of Korea has taken an increasingly favorable attitude towards efforts to reduce the birth rate of the nation. Following the visit, invited by the government, of a Population Council Mission in 1963, a national program was launched. Operating as a new section within the Ministry of Health and Social Affairs, the official program was given a 1964 budget of 220 million Won (just under 2 million U.S. dollars) with 160 million from the National budget and 60 million from local government budgets. The objective of the program was to reduce the rate of population growth from its then-present level of nearly 3 per cent to 2 per cent by 1971. Originally, it was estimated that to do this would require inserting 1,000,000 IUD's, performing 200,000 vasectomies and having an additional 300,000 regular users of conventional methods, principally condoms. (Later, these norms were changed to 1,800,000 IUD's, 150,000 vasectomies, and 150,000 users of conventionals.) Beginning in 1968, the orals have also been assigned a modest but growing role in the program. From the outset, the Ministry delegated considerable parts of the program to the private Planned Parenthood Federation of Korea. The PPFK took the leading role especially in training workers and supervisors and in preparing necessary written materials and visual aids. This close relationship between the Ministry and the PPFK has continued even though the precise division of responsibility has changed somewhat over time.

The Population Council entered the picture early, with grants to cover foreign exchange costs of purchasing contraceptives, vehicles for the field supervisors and technical support and advice on various aspects of the program. The Population Council has also financed almost completely a wide range of research and evaluation efforts through grants to Universities and Medical Schools for research and action-research projects. Best known of these latter

are probably the Sundong Gun and Koyang Gun projects. Additional outside support from private doners has come through the PPFK from IPPF, Pathfinder Fund, OXFAM, Brush Foundation, and the Asia Foundation. Beginning with 1968, SIDA, and the USAID have also contributed substantially to the support of the program.

Estimates of Total Funds Available

Thus, the principal cources of funds are: (1) the Government of Korea, (2) Population Council, (3) other private doners, mainly IPPF, through PPFK, (4) USAID, and (5) SIDA. Tables I through V present summary totals of this support separated by source, while Table VI gives our estimates of total funds allocated to the Korean family planning program from all sources. A word or two of explanation is in order concerning each of these sources of funds.

A.) Population Council Grants

It appears at first glance that some ambiguity exists concerning the exact amount of Population Council grants to the program, since the PPFK published annual reports record figures which differ markedly from total support to the Korean program shown in the Population Council annual reports.

	PPFK Reports	Population Council Reports
1964	122,524	264,298
1965	203,328	364,026
1966	233,540	437,524
1967	287,387	471,859
1968	509,383	778,853

Upon inspection, however, we find that differences between the two figures can be reconciled. The apparent disagreements are due to the following factors:

(1) the PPFK figures do not indicate costs of the P.C. advisory staff to the program (shown in the appendix to this chapter).

(2) the P.C. reports indicate only when a grant is paid by New York, not when actual spending in Korea occurs. Thus, the discrepancy may be thought of as funds in the "pipeline", with the New York figures

Table I

Government of Korea
Funds for Family Planning*
(Millions of Won)

	Central Government**	Local Government	Total
1964	159.2	57.8	217.0
1965	196.4	64.0	260.4
1966	424.1	131.0	555.1
1967	424.9	139.0	563.9
1968	431.2	148.0	579.2

* Government fiscal year is January 1 to December 31.

** Estimates of salaries and expenses of MCH Section in the Ministry which represent family planning are also included.

Table II

Summary of Population Council Contributions
for Korean Family Planning*
(U.S. Dollars)

	1964	1965	1966	1967	1968
PPFK Grants	$153,002	$195,881	$241,170	$274,552	$502,018
Other Grants	60,538	108,363	161,208	147,173	240,515
Fellowships and Travel Grants	50,758	59,782	35,146	50,134	36,320
	$264,298	$364,026	$437,524	$471,859	$778,853

*Calendar Years.

Table III

Other Foreign Grants to PPFK
(Other than Population Council)*
(U.S. Dollars)

	1964	1965	1966	1967	1968
IPPF	$12,000	$43,105	$56,300	$85,084	$334,572
Path Finder Fund	3,470	5,900	7,650	5,500	-
Asia Foundation	6,640	-	2,997	-	-
Oxfam	-	18,704	-	-	-
Brush Foundation	5,000	-	-	-	-
	$27,110	$67,709	$66,947	$90,584	$334,572

*Calandar Years.

Table IV

Summary of USAID Contributions
For Korean Family Planning*
(U.S. Dollars)

	1964*	1965	1966	1967	1968	Total
Equipment and Vehicles	16,250	16,250	16,250	8,125	100,000	156,875
Technical Adviser	27,500	27,500	27,500	27,500	27,500	137,500
Commodities	5,000	5,000	5,000	102,500	2,100,000	2,217,500
Evaluation	-	-	-	-	100,000	100,000
Participant Training	5,000	5,000	5,000	15,000	112,500	142,500
	53,750	53,750	53,750	153,125	2,440,000	2,754,375

*Calendar Years.

Table V

SIDA Contributions to
Korean FP Program*
(U.S. Dollars)

1968	$339,600 or	Pills, Other Commodities, Plus Equipment as Follows:
		(a) 30 Land-Rovers at $2,500 @ = 75,000
		(b) 8 Mobile Units at 10,000 @ = 80,000
		(c) 38 Sets of A-U Equipment at 700 @ = 26,600
		(d) 30 Sets of Clinical Equipment for Land-Rovers at 500 @ = 15,000
		(e) 1.3 Million Oral Cycles at 11 cents @ =143,000

Funds Obligated in 1967, Goods Arrived 1968

*Calendar Year.

Table VI

Total Financing for Korean Family Planning
(U.S. Dollars)

	Government of Korea*	Population Council	Other Foreign Donors to PPFK	USAID	SIDA	Total
1964	$ 803,704	$264,298	$ 27,110	$ 53,750	-	$ 1,148,862
1965	964,444	364,026	67,709	53,750	-	1,449,929
1966	2,055,926	437,524	66,947	53,750	-	2,614,147
1967	2,088,519	471,859	90,584	153,125	-	2,804,087
1968	2,145,185	778,853	334,572	2,440,000	$339,600	6,038,210
						$14,055,235

* Won converted to U.S. Dollars at 270 = $1.00.

naturally being consistently above the Korean figure.

(3) PPFK figures are based on their fiscal year which ends March 31, while P.C. data is based on the calendar year.

(4) Some funds are spent directly in New York on commodities and thus are never reflected as "received" in Korea, even though the commodities end up in the program.

The chief reason for the discrepancy is probably the "pipeline" problem. Taking the New York figures, as we do in Table II of this paper, means that we are overstating the actual expenditures to some degree. Or, more precisely, it means that we are not being completely accurate in our timing of these expenditures. However, using the P.C. New York data (shown in the appendix to this chapter) permits a more consistent and complete series by which all grants can be accounted for, and for this reason we prefer these data.

B.) ROK Local Government Funds

The totals indicated in Table I for Local Government expenditures do not include salaries paid to local government employees working full-time on family planning. Thus, this category of funds spent on the program is an under-estimate of the actual funds spent for family planning at the local level. Collecting accurate data on this score would be, however, another research project in itself.

C.) USAID Funds

It should be remarked that a large portion of AID funds granted for 1968 include major items of equipment. Unless these funds are amortized an upward bias necessarily results in our performance to cost estimates, especially in the most recent years. However, we lack the necessary amortization or depreciation tables to do this with any precision.

Expenditure Breakdowns of Program Funds

Table VII through Table XI give our estimates of the expenditures on the program, by category, direct and indirect, from all sources. Finally,

Table XII summarizes these expenditures for the five-year period, 1964-1968, the period under consideration in our analysis. It is seen that expenditures have grown over the period from approximately one billion dollars, U.S., in 1964, to around six million dollars, U.S., in 1968. This sharp increase reflects, all observers agree, a continual expansion of the scope and range of activities being undertaken by the program. Moreover, the largest increase, absolute and percent, occurs in 1968 when large capital-type inputs were allocated to the program by USAID and SIDA.

The category-wise allocations show a pattern quite similar to that of Taiwan. "Direct" expenditures are consistently a majority of the total and show a tendency to increase over time. Categories (6) (Administration) and (9) (Research and Training) are the major component of "Indirect" spending, the latter reflecting again the emphasis placed by Population Council on the "demonstration" aspects of the program. The results of the computations of CYP also are given in Table XIII.

Cost per CYP

The final calculation reported in this section is the computation of cost per CYP for Korea, by year, for the period 1964-1968. To obtain this ratio, total program costs by year are simply divided by the total CYP generated by the program.

The results of these calculations are given below:

	1964	1965	1966	1967	1968
Cost	1,148,862	1,449,929	2,614,147	2,804,087	6,038,210
CYP	690,604	939,589	1,344,022	1,130,916	926,130
Cost per CYP in Dollars	$1.66	$1.54	$1.94	$2.48	$6.52

The unit costs shown are very similar to those derived for the Taiwan program. The Korean unit-cost also shows a fluctuating trend, falling, rising and rising yet again. Even more than has been the case for the Taiwan program, the Korean Program has undergone major expansion and increase in scope since

Table VII

Government of Korea Spending on Family Planning, By Expenditure Categories, 1964-1968
(Calendar Years, in Millions of Won)

Direct	1964	1965	1966	1967	1968	Total
Salaries and Allowances	90.1	142.0	305.8	275.5	333.1	1146.5
Contraceptive Supplies	30.5	35.4	41.8	21.5	55.9	185.1
Vehicles and Equipment	-	-	3.9	3.9	3.9	11.7
Training of Field Workers	-	-	13.7	28.2	.4	42.3
Other Field Expenses	2.2	8.0	44.8	70.6	34.9	160.5
Indirect						
Administration	61.4	66.2	123.9	149.9	136.3	537.7
Analysis and Evaluation	-	2.0	3.4	3.6	3.8	12.8
Publicity, Education	32.8	6.8	17.8	10.7	10.9	79.0
Research and Training	-	-	-	-	-	-
All Other Indirect Costs	-	-	-	-	-	-
Total	217.0	260.4	555.1	563.9	579.2	2175.6

(in U.S. Dollars)

Direct						
Salaries and Allowances	333,704	525,926	1,132,593	1,020,370	1,233,704	4,246,297
Contraceptive Supplies	112,963	131,111	154,815	79,630	207,037	685,556
Vehicles and Equipment	-	-	14,445	14,445	14,445	43,335
Training of Field Workers	-	-	50,740	104,445	1,481	156,666
Other Field Expenses	8,148	29,630	165,926	261,481	129,259	594,444
Indirect						
Administration	227,407	245,185	458,889	555,185	504,815	1,991,481
Analysis and Evaluation	-	7,407	12,592	13,333	14,074	47,406
Publicity, Education	121,482	25,185	65,926	39,630	40,370	292,593
Research and Training	-	-	-	-	-	-
All Other Indirect Costs	-	-	-	-	-	-
Total	803,704	964,444	2,055,926	2,088,519	2,145,185	8,057,778

Table VIII

Population Council Support for Korean Family Planning Program, by Grant Number and Expenditure Categories, 1964-1968
(Calendar Years, in U.S. Dollars)

1964

	Direct						Indirect			
Grant Number	Salaries and Allowances	Contraceptive Supplies	Vehicles and Equipment	Training of Field Workers	Other Field Expenses	Administration	Publicity, Education	Analysis and Evaluation	Research and Training	All Other Indirect Costs	Grant Total
D 6369								4,930			4,930
M 6372								7,815			7,815
T 640.37, T 640.49, T 640.50		10,507									10,507
D 645								15,000			15,000
M 640.33									4,500		4,500
D 64.81									6,950		6,950
D 64.82									3,330		3,330
T 64.15									28,258		28,258
D 640.8									2,500		2,500
A 64.91			55	170		24	83	49		25	406
T 6416		24,709	318	41,591		6,303		4,351		2,096	79,368
T 6417	18,091	50	650		10,595	4,748	8,646		7,196		49,976
Miscellaneous Travel and Study Grants*									13,321		13,321
	18,091	35,266	1,023	41,761	10,595	11,075	8,729	32,145	103,492**	2,121	254,298

D 640.11, D 630.41, D 630.25, D 630.26, D 630.27, D 630.31, D 630.32, D 630.33, D 630.35, D 630.46, D 630.47, D 640.12, D 640.16.

Includes Fellowships ($37,437).

Table VIII (cont'd)

1965

Grant Number	Direct: Salaries and Allowances	Direct: Contraceptive Supplies	Direct: Vehicles and Equipment	Direct: Training of Field Workers	Direct: Other Field Expenses	Indirect: Administration	Indirect: Publicity, Education	Indirect: Analysis and Evaluation	Indirect: Research and Training	Indirect: All Other Indirect Costs	Grant Total
D 65.37									40,000		40,000
T 6415									29,363		29,363
T 65.11									22,500		22,500
D 65.09									1,000		1,000
D 64.82									6,667		6,667
T 65.53									4,500		4,500
T 65.12									25,000		25,000
D 65.97									8,833		8,833
T 6416			632								632
T 6417	18,875	402			7,140	3,213	11,111		625	3,258	44,624
T 64.91			24,459	35,130		6,012	17,437	10,307		6,893	100,238
T 65.88	5,867		183		1,114	352	491				8,007
T 65.104	8,850				880	965	1,457			728	12,880
Miscellaneous Travel and Study Grants*									11,813		11,813
	33,592	402	25,274	35,130	9,134	10,542	30,496	10,307	198,270**	10,879	364,026

* T 65.058, T 65.024, T 65.039, M 640.78, M 65.016, T 640.70, T 640.76, M 640.61, T 640.63.

** Includes Fellowships ($47,969).

Table VIII (cont'd)

1966

Grant Number	Direct				Indirect					
	Salaries and Allowances	Contraceptive Supplies	Vehicles and Equipment	Training of Field Workers	Other Field Expenses	Administration	Publicity, Education	Analysis and Evaluation	Research and Training	All Other Indirect Costs	Grant Total
D 66.37									34,147		34,147
D 66.38									14,195		14,195
T 65.52									11,659		11,659
T 65.108									38,252		38,252
T 66.024									5,000		5,000
D 65.09									1,115		1,115
M 66.69									10,667		10,567
M 66.061									5,000		5,000
T 66.097								3,000			3,000
T 66.096								3,000			3,000
T 66.098								3,000			3,000
D 65.97									12,673		12,673
T 66.58									8,696	11,804	20,500
D 66.108									2,000		2,000
T 65.88									17,364	6,335	23,699
T 65.104	19,625				1,951	2,140	3,230			1,615	28,561
T 66.59	14,745		4,182		4,738	1,466	9,415	5,016		725	40,287
T 66.4			4,107	92,937		5,606	15,232	23,926		3,815	145,623
Miscellaneous Travel and Study Grants*									5,275		
	34,370		8,289	92,937	6,689	9,212	27,877	37,942	195,914**	24,294	437,524

* T 66.017, D 66.087, T 66.022, T 66.078, T 66.033.

** Includes Fellowships ($29,871).

Table VIII (cont'd)

1967

Grant Number	Direct: Salaries and Allowances	Direct: Contraceptive Supplies	Direct: Vehicles and Equipment	Direct: Training of Field Workers	Direct: Other Field Expenses	Indirect: Administration	Indirect: Publicity, Education	Indirect: Analysis and Evaluation	Indirect: Research and Training	Indirect: All Other Indirect Costs	Grant Total
D 66.37									30,429		30,429
D 66.38									2,051		2,051
T 65.52									24,081		24,081
T 65.108									34,167		34,167
D 67.089									4,050		4,050
D 67.037							5,000				5,000
M 67.057									4,500		4,500
T 67.58								20,000			20,000
T 67.063									4,982		4,982
T 66.097								2,000			2,000
M 66.69									436		436
D 65.09									545		545
D 65.97									4,083		4,083
T 67.59						10,849					10,849
T 65.88									8,705	3,175	11,880
T 66.59	6,300		1,787		2,023	627	4,023	2.143		310	17,213
T 66.4			132	2,996		181	491	771		123	4,694
T 67.1			9,844	93,390		10,790	23,636	42,739		4,931	185,330
T 67.56	27,750		3,095	8,875		2,454	7,127			1,099	50,400
T 67.57			719			278	278		3,760		5,035
Miscellaneous Travel and Study Grants*									8,735		8,735
	34,050		15,577	105,261	2,023	25,179	40,555	67,653	171,923**	9,638	471,859

* D 67.065, D 67.064, T 67.0123, D 67.0109, T 67.075, D 67.0121.

** Includes Fellowships ($41,399).

Table VIII (cont'd)

1968

Grant Number	Direct: Salaries and Allowances	Direct: Contraceptive Supplies	Direct: Vehicles and Equipment	Direct: Training of Field Workers	Direct: Other Field Expenses	Indirect: Administration	Indirect: Publicity, Education	Indirect: Analysis and Evaluation	Indirect: Research and Training	Indirect: All Other Indirect Costs	Grant Total
D 68.5									41,574		41,574
T 68.12									44,383		44,383
T 68.09, T 68.08								2,950	4,970		7,920
D 68.068							5,000				5,000
D 68.136, D 68.067								5,000	7,583		12,583
M 68.104							9,550				9,550
D 68.039							5,000				5,000
T 68.9						26,892					26,892
T 68.61								19,400			19,400
M 68.162									11,000		11,000
M 68 170									20,000		20,000
T 67.59						14,498					14,498
T 66.096, T 67.58								7,240			7,240
D 65.97									6,911		6,911
D 65.09								2,340			2,340
T 66.098								2,000			2,000
T 67.1	310										310
T 67.56	7,671		855		2,453	678	1,970			305	13,932
T 67.57			2,155			836	836		11,288		15,115
T 67.102			5,989	91,317		10,966	30,003	50,031		9,994	198,300
T 68.60,*			8,225	125,422		15,062	41,208	68,717		13,727	272,361
T 68.8									13,124		13,124
Miscellaneous Travel and Study Grants**											
	7,981		17,224	216,739	2,453	68,932	93,567	157,678	190,253***	24,026	778,853

* These totals distributed on the same basis as T 67.102.

** D 68.0135, D 68.016, D 68.059, D 68.043, T 67.0152, D 66.37, D 68.093, T 67.0155, D 68.074, D 68.044, D 68.038.

*** Includes Fellowships ($23,420) plus $6,000 for training fellow.

Table IX

IPPF, Pathfinder, Asia, Brush, Oxfam Foundations Support for Korean Family Planning, by Expenditure Categories, 1964-1968*
(Calendar Years, in U.S. Dollars)

	Direct	1964	1965	1966	1967	1968	Total
(1)	Salaries and Allowances	-	-	-	-	-	-
(2)	Contraceptive Supplies	-	-	-	-	-	-
(3)	Vehicles and Equipment	-	-	-	-	190,052	190,052
(4)	Training of Field Workers	-	-	-	-	-	-
(5)	Other Field Expenses	7,119	11,551	10,002	9,747	65,320	103,739
	Indirect						
(6)	Administration	2,353	4,184	6,219	7,056	54,860	74,672
(7)	Analysis and Evaluation	-	-	-	-	-	-
(8)	Publicity, Education	1,909	2,417	1,406	2,373	18,840	26,945
(9)	Research and Training	15,431	47,891	45,591	70,185	2,000	181,098
(10)	All Other Indirect Costs	298	1,666	3,729	1,223	3,500	10,416
	Total	27,110	67,709	66,947	90,584	334,572	586,922

* The percentage breakdown of PPFK expenditures by fiscal year, of all foreign grants, was used to allocate the total support from the above sources for 1964-1968.

Table X

U.S.A.I.D. Support for Family Planning, 1964-1968
(Calendar Years, in U.S. Dollars)

	Direct	1964	1965	1966	1967	1968	Total
(3)	Vehicles and Equipment	21,250	21,250	21,250	110,625	2,200,000	2,374,375
(4)	Training of Field Workers	5,000	5,000	5,000	15,000	112,500	142,500
	Indirect						
(7)	Analysis and Evaluation	-	-	-	-	100,000	100,000
(9)	Research and Training	27,500	27,500	27,500	27,500	27,500	137,500
	Total	53,750	53,750	53,750	153,125	2,440,000	2,754,375

Table XI

SIDA Support for Family Planning, 1964-1968
(Calendar Years, in U.S. Dollars)

	Direct	1968
(1)	Salaries and Allowances	-
(2)	Contraceptive Supplies	143,000
(3)	Vehicles and Equipment	196,600
(4)	Training of Field Workers	-
(5)	Other Field Expenses	-
	Total	339,600

Table XII

Summary of All Support, By Expenditure Category
To The Family Planning Program in Korea
(Calendar Years, in U.S. Dollars)

	1964		1965		1966		1967		1968		Total	
Direct	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
Salaries and Allowances	351,795	30.6	559,518	38.5	1,166,963	44.6	1,054,420	37.6	1,241,685	20.6	4,374,381	31.1
Contraceptive Supplies	148,229	12.9	131,513	9.1	154,815	5.9	79,630	2.9	350,037	5.8	864,224	6.1
Vehicles and Equipment	22,273	1.9	46,524	3.2	43,984	1.7	140,647	5.0	2,618,321	43.4	2,871,749	20.4
Training of Field Workers	46,761	4.1	40,130	2.8	148,677	5.7	224,706	8.0	330,720	5.5	790,994	5.6
Other Field Expenses	25,862	2.3	50,315	3.5	182,617	7.0	273,251	9.8	197,032	3.3	729,077	5.2
Indirect												
Administration	240,835	21.0	259,911	17.9	474,320	18.2	587,420	20.9	628,607	10.4	2,191,093	15.6
Analysis and Evaluation	32,145	2.8	17,714	1.2	50,534	1.9	80,986	2.9	271,752	4.5	453,131	3.2
Publicity, Education	132,120	11.5	58,098	4.0	95,209	3.6	82,558	2.9	152,777	2.5	520,762	3.7
Research and Training	146,423	12.7	273,661	18.9	269,005	10.3	269,608	9.6	219,753	3.6	1,178,450	8.4
All Other Indirect Costs	2,419	.2	12,545	.9	28,023	1.1	1,861	.4	27,526	.4	81,374	.6
Total	1,148,862	100.0	1,449,929	100.0	2,614,147	100.0	2,804,087	100.0	6,038,210	100.0	14,055,235	99.9

Table XIII

Measures of Output of Korean
Family Planning Program, 1964-1968

	1964	1965	1966	1967	1968
IUCD's inserted*	107,444	226,179	380,449	305,366	237,170
Vasectomies	26,256	13,078	19,964	19,677	15,955
Traditionals**	1,875,613	2,300,477	2,026,418	1,832,691	1,622,000
Oral cycles***	-	-	-	-	75,611

*First insertions
**Number of dozens distributed
***New patients reached during year

Couple-Years of Protection	1964	1965	1966	1967	1968
IUCD's	268,610	565,447	951,122	763,415	592,925
Vasectomies	196,920	98,085	149,730	147,578	119,662
Traditionals	225,074	276,057	243,170	219,923	194,640
Oral cycles	-	-	-	-	18,903
Total	690,604	939,589	1,344,022	1,130,916	926,130

its beginning. The increased unit costs in 1967 and especially 1968 reflect the large increase in the financial base of the program which as yet have not produced a concomittant increase in program output. However, it seems very likely that costs per unit in 1969 and 1970 will be down again to the 1965-1966 range.

Appendix to Korean Chapter

Table A

Population Council
Grants to PPFK

Grant Number	1964	1965	1966	1967	1968
D 6369	4,930				
M 6372	7,815				
T 6417	49,976	44,624			
T 640.37	3,220				
T 640.49	2,287				
T 640.50	5,000				
T 6416	79,368	632			
T 6491	406	100,238			
T 65.53		4,500			
T 65.88		9,007	23,699	11,080	
T 65.104		12,000	28,561		
T 65.12		25,000			
T 66.59			40,287	17,213	
T 66.098			3,000		2,000
T 66.4			145,623	4,694	
T 67.1				125,330	310
T 67.56				50,400	13,932
T 67.57				5,035	15,115
T 67.102					198,300
T 68.8					*234,850
T 68.60					37,511
Totals	153,002	195,381	241,170	274,552	502,018

* USAID funds channelled through Population Council.

Appendix

Table B

Population Council Grants to Institutions and Agencies Other Than PPFR

Grant Number	1964	1965	1966	1967	1968
D 645	15,000				
M 640.33	4,500				
D 6481	6,950				
D 6482	3,330	6,667			
D 6597		8,833	12,673	4,083	6,911
D 65.09		1,000	1,115	545	2,340
T 65.11		22,500			
T 66.58			20,500		
M 66.69			10,667	436	
M 66.061			5,000		
T 66.097			3,000	2,000	
T 66.096			3,000		1,800
T 66.024			5,000		
T 67.063				4,982	
T 67.58				20,000	5,440
T 67.59				10,849	14,498
M 67.057				4,500	
M 68.170					20,000
M 68.162					11,000
T 68.61					19,400
T 68.9					26.892
D 68.039					5,000
M 68.104					9,550
D 640.8	2,500				
D 68.136					7,583
D 66.108			2,000		
D 67.037				5,000	
D 68.068					5,000
D 67.089				4,050	
D 68.067					5,000
T 68.09					2,950
T 68.08					4,070
Total	32,280	39,000	62,955	56,445	148,334
Advisers					
(1) Resident Adviser in Health Education					
T 6415	28,258	29,363			
T 65.108			38,252	34,167	
T 68.12					44,383
Sub Total	28,258	29,363	38,252	34,167	44,383

Table B (cont'd)

Advisers	1964	1965	1966	1967	1968
Sub Total	28,258	29,363	38,252	34,167	44,333
(2) Medical Adviser					
T 65.52			11,659	24,081	
(3) Demographic Adviser					
D 6537		40,000			
D 66.38			14,195	2,051	
D 68.5					41,574
(4) Statistical Adviser (to EPB)					
D 66.37			34,147	30,429	224
(5) Training Fellow					6,000
Total	60,538	108,363	161,208	147,173	240,515

Appendix

Table C

Population Council Fellowships and Travel Grants to Koreans

Travel Grants	1964	1965	1966	1967	1968
D 640.11	673				
D 630.41	2,350				
D 630.25	120				
D 630.26	1,400				
D 630.27	1,400				
D 630.31	1,500				
D 630.32	1,500				
D 630.33	1,500				
D 630.35	200				
D 630.46	203				
D 630.47	203				
D 640.12	672				
D 640.16	1,600				
M 640.61		500			
T 640.63		4,600			
T 640.70		2,500			
D 640.76		240			
M 640.78		1,302			
M 65.016		531			
T 65.024		535			
T 65.039		1,255			
T 65.058		350			
T 66.017			100		
T 66.022			170		
D 66.087			205		
D 67.064				270	
D 67.065				2,070	
D 67.0109				175	
T 67.0123				1,200	
D 67.0121				500	
T 67.0152					145
D 68.038					220
D 68.043					3,122
D 68.044					3,122
T 68.059					129
D 68.074					600
D 68.0135					307
T 66.033			4,300		
T 66.078			470		
T 67.075				4,520	
T 67.0155					1,209
D 68.016					1,776
D 68.093					1,963
D 68.0135					307
*Total Fellowships	37,437	47,969	29,871	41,399	23,420
Total	50,758	59,782	35,146	50,134	36,320

*Bio-Medical Excluded.

Chapter V

Chile

Introduction

This chapter presents a summary of the available information on the Family Planning Program in Chile for the period 1964-1968. Emphasis is placed throughout the paper on family planning in Chile as it relates to the objectives of our research project.

We first ask how much it costs to obtain a unit of benefit-creating output from Chile's program. By then comparing these costs per unit obtained with similar results from other programs it is hoped that this analysis will thus yield a consistent framework by which all countries can evaluate their own program performance levels.

The costs (or inputs) into a family planning program consist of resources expended - the services of personnel (physicians, aides and administrators, full and part-time), the use of capital equipment (physical plant and equipment), and the direct use of materials and devices to prevent births. In sum, the costs include all direct and indirect resource inputs to the program - which can be added or totaled by use of value, or dollar, terms.

Consequently, we are concerned in this paper with reporting all contributions, direct and indirect, which have been made to the family planning program in Chile - including those made by relevant Chilean institutions, both governmental and private, as well as the extent of foreign assistance from international organizations, governmental and private.

Our measure of "output" used in the analysis to compute the cost per unit of output aims at judging actual quantitative program "outputs". An index, called "Couple Years of Protection" (or CYP), has been developed by Wishik to make possible a comparison of performance of alternative methods of contraception. The method has been discussed at length in earlier sections of this report. In this paper appropriate adjustments to the index have been made in order to make the index conformable to the data available on the "output"

obtained by the program (as derived from available medical reports, giving, for example, IUD's inserted, pills distributed, sterilizations performed, and so on).

Thus, in Table VI we summarize all expenditures, direct and indirect, which have served as inputs into the family planning program in Chile, from all sources. Table VII summarizes the output of the program from medical reports available to us. In Table VII we also transform the output into couple years of protection. Finally, from Table VI and Table VII we compute the cost per CYP, the value of which can then be compared against values for the same measure for other countries.

Inputs to the Program

A.) Chilean Support for the Family Planning Program

(1.) National Health Service (SNS)

(a) Background

Until 1962 the Chilean Government did not officially recognize or support family planning programs which had been carried out privately since as far back as 1938. However, the Committee for the Protection of the Family was organized (1962) under the auspices of the National Health Service and has utilized SNS facilities. At that time the new SNS director, Dr. Francisco Mardones Restat, stated that "the SNS would promote, not enforce, birth control in such cases where husband and wife agree." He also stated that doctors in out-patient clinics would begin a birth control information program, counseling mothers and providing services according to personal needs. These statements of Dr. Mardones constituted a radical departure from previous policies on birth control. It must be emphasized, however, that official government policy sanctioned birth control programs only because of alarmingly high rates of induced

abortions in the country, and that government policy in this area has consistently reflected that aim.

Family planning services have been incorporated into the child and maternal hygiene programs of the SNS. Therefore, separate accounts indicating resource inputs into the area of family planning are not available. Furthermore, the extent of involvement of SNS clinics is not known. Instructions were sent to all SNS offices in September 1966 regarding the basic norms governing birth control activities, but leadership in the implementation of these norms was largely left in the hands of local administrators.

The goals of the birth control program are to lower the rate of maternal and infant mortality and to promote family welfare. The objective of the SNS program is to assure priority attention to a) all women receiving treatment for abortion; b) up to 40% of the women attended for childbirth in SNS facilities, preferably multiparous women with serious socio-economic problems or with chronic diseases; and c) up to 10% of the women of childbearing age.

Birth control information and contraceptives are now available at all SNS hospitals and clinics. However, as stated above, under SNS instructions each hospital district was to develop its own action program. This leaves local administrators with great latitude in pushing or holding back on a widespread program, depending upon the administrator's own views regarding birth control.

(b) Inputs

SNS contributions to the family planning program are summarized in Table I.

Table I

Expenditures By Major Categories By Government of Chile on Family Planning, 1964-1968
(Millions of U.S. Dollars)*

	Direct	1964	1965	1966	1967	1968	Total
(1)	Salaries and Allowances	49,023	50,983	-	-	-	100,006
(2)	Contraceptive Supplies	-	-	100,000	100,000	-	200,000
(3)	Vehicles and Equipment	1,288	1,288	-	-	-	2,576
(4)	Training of Field Workers	-	-	-	-	-	-
(5)	Other Field Expenses	2,827	2,827	200,000	200,000	500,000	905,654
	Indirect						
(6)	Administration	5,588	8,386	200,000	200,000	500,000	913,974
(7)	Analysis and Evaluation	-	-	-	-	-	-
(8)	Publicity, Education	-	-	-	-	-	-
(9)	Research and Training	-	-	-	-	-	-
(10)	All Other Indirect Costs	-	-	-	-	-	-
	Total	58,726	63,484	500,000	500,000	1,000,000	2,122,210

* Calendar Years throughout.

The data for 1964 and 1965 were obtained from memorandums on file in the Western hemisphere office of the IPPF in New York. They are estimates made by SNS officials and forwarded to IPPF, New York, by the Chilean Association for Protection of the Family.

IPPF annual reports indicate that approximately $400,000 of the SNS budgets for 1966 and 1967 was earmarked for administrative expenses in connection with population control activities. In addition $100,000 was spent for drugs and contraceptive devices. However, no breakdowns were available indicating actual expenditures by SNS for family planning (nor breakdowns of expenditures). Consequently, for purposes of analysis we have allocated $200,000 of the $400,000 administration expenses cited to the direct account, under the category "Other field expenses" (this category serves as a "catch all" for those expenditures which, although direct, cannot be precisely identified). This means, in effect, that direct expenditures for personnel will be understated, since some portion of these "Other field expenses" undoubtedly reflect SNS payments to physicians and para-medical employees of the SNS. The remaining $200,000 for the years 1966 and 1967 has, as shown in the table, been allocated to indirect administration.

Similarly, the estimate of $1,000,000 made by SNS officials as the government's contribution to the family planning program for 1968 was allocated along the same lines, and for the same reasons, as for 1966 and 1967, discussed above.

(2.) The Committee for the Protection of the Family

(a) Background

The Committee was formed in 1962 by prominant physicians,

sociologists, demographers, and social workers in Chile to combat illegal abortion. Since many of the physicians were also associated with the SNS, the association has worked closely with SNS and used its facilities extensively.

The Committee provides birth control information and services in clinics of the National Health Service, the Chilean Red Cross, the Chilean Social Security System hospitals, the University of Chile, Catholic University, University of Conception, Military Hospital and such private clinics as the Clinica Israllita in Santiago and in the provinces. But, the Committee does not operate its own clinics. Work is carried on in more than 135 clinics. The program is one of action, not research, and consists of consultations, treating patients, and recommending contraceptive methods when requested by patients.

(b) Inputs

Support for the activities of the Committee have come from grants by IPPF. These grants started in 1964 and have increased in yearly amounts to the present time.

Briefly, summary expenditures of funds granted by IPPF indicate that a total of $531,979.57 has been spent during the period January 1964-December 1968.

By year, the totals are:

1964	$ 28,501.50
1965	88,565.72
1966	135,510.40
1967	132,437.68
1968	146,964.27

These totals probably accurately reflect expenditure of IPPF funds on the family planning program in Chile. Detailed breakdowns of expenditures by category, by direct and indirect expenditures, are given below.

Finally, these expenditures reflect only IPPF contributions to the family planning effort in Chile. This means that IPPF contributions to the Latin American Training Institute, located in Chile, are not reflected in these expenditures (the Institute trains nationals from all over South America in Family Planning techniques).

The data recorded in Table II were derived from reports submitted to the IPPF, New York, by the Chilean Association for Protection of the Family. These reports are summarized in Table II-A of this report. These expenditures have been re-grouped into the ten consolidated "direct" and "indirect" categories employed throughout this study (and discussed in earlier sections). Thus:

(1) "Salaries and Allowances" includes Professional Salaries, Lab Exams
(3) "Vehicles and equipment" includes Purchase of equipment
(2) "Contraceptive Supplies" includes Contraceptive Materials
(5) "Other field expenses" includes Medicines
(8) "Publicity, Education" includes Printing, Teaching Materials, and Teaching Time
(10) "Other indirect expenses" includes Other
(6) "Administration" includes all other IPPF categories

and these allocations lead to the breakdown of total IPPF-supported expenditures given in Table II.

B.) International Organizations

(1.) Ford Foundation

(a) Background

In January, 1962, the Ford Foundation made a grant to the University of Chile's School of Medicine. The program supported by this grant, directed by Drs. Zanarter and Pugo, formally aimed at investigating the psychological and social aspects of human reproduction as well as biological aspects. In fact, however, little was done in anything but the biological aspects.

Table II
IPPF Spending for the Chilean Family Planning Program by Expenditure Categories, 1964-1968
(In U.S. Dollars)

Direct	1964	1965	1966	1967	1968	Total
(1) Salaries and Allowances	7,351	29,412	66,005	63,730	79,733	246,231
(2) Contraceptive Supplies	948	5,230	42,106	40,668	8,402	97,354
(3) Vehicles and Equipment	-	20,764	3,890	1,034	2,928	28,616
(4) Training of Field Workers	-	-	-	-	-	-
(5) Other Field Expenses	-	3,623	2,080	341	277	6,321
(6) Administration	14,453	22,377	14,424	20,511	48,106	119,871
(7) Analysis and Evaluation	-	-	-	-	-	-
(8) Publicity and Education	1,788	2,947	4,505	2,723	2,444	14,407
(9) Research and Training	-	-	-	-	-	-
(10) All Other Indirect Costs	3,962	4,213	2,500	3,431	5,074	19,180
Total	28,502	88,566	135,510	132,438	146,964	531,980

Table II-A

Expenditure of IPPF Contributions by Chilean Association for Protection of the Family, 1964-1968
(In Escudos)

Direct	1964	1965	1966
Professional Salaries	23,516.52	120,678.28	291,943.56
Medicine	-	14,950.56	9,359.60
Purchase of Equipment	-	85,691.33	17,503.39
Contraceptive Materials	-	21,583.66	189,477.05
Lab Exams	-	-	5,079.62
Indirect			
Administrative Salaries	11,705.07	29,268.58	60,969.66
Rent	900.00	5,109.68	6,717.40
Heat, Electricity	17.28	266.39	1,210.92
Telephone, Telegraph	21.60	823.60	1,854.66
Office Expenses	1,302.08	4,435.79	4,312.52
Printing	5,719.26	12,161.49	20,274.39
Postage	60.45	1,427.97	5,106.74
Trips	496.36	1,177.93	4,778.83
Furniture	31,759.94	25,689.77	9,344.52
Social Law (Soc. Sec.)	-	-	-
Travel Expenses	-	-	-
Teaching Materials	-	-	-
Teaching Time	-	-	-
Other	12,674.00	17,387.84	11,248.94
Total	E°91,204.73	E°340,652.87	E°639,181.80
	US $28,501.50*	US $86,565.72**	US $135,510.40***

* E° 3.199 = US $1.00.

** E° 4.127 = US $1.00 average for year.

*** E° 4.15 (Jan.) to 4.94 (Dec.) = US $1.00.

Table II-A (cont'd)

Direct	1967	1968	Grand Totals
Professional Salaries	382,127.60	675,339.25	1,493,605.21
Medicine	2,043.35	2,347.05	28,700.56
Purchase of Equipment	6,205.92	24,802.36	134,203.00
Contraceptive Materials	244,007.27	71,164.59	529,263.87
Lab Exams	251.90	-	5,331.52
Indirect			
Administrative Salaries	87,422.20	173,655.95	363,021.46
Rent	11,960.20	33,311.75	57,999.03
Heat, Electricity	1,090.85	2,395.73	4,981.17
Telephone, Telegraph	2,598.54	5,314.81	10,613.21
Office Expenses	3,128.76	28,048.46	41,227.61
Printing	16,340.05	37,268.65	91,763.84
Postage	8,537.78	15,570.84	30,703.78
Trips	1,451.46	8,100.09	16,004.67
Furniture	6,874.00	39,319.02	112,987.25
Social Law (Soc. Sec.)	-	3,284.26	3,284.26
Travel Expenses	-	61,185.18	61,185.18
Teaching Materials	-	5,622.57	5,622.57
Teaching Time	-	15,075.68	15,075.68
Other	20,586.04	42,981.16	104,877.98
Total	E°794,625.92	E°1,244,787.40	E°3,110,452.72
	US $132,437.65*	US $146,964.27**	US $531,979.57

* E° 4.98 (Jan.) to 6.65 (Dec.) = US $1.00
(E° 6.00 = $1.00 Taken for Computation).

** E° 8.47 = US $1.00.

Since the grant was made for research and training in reproductive biology, and was not considered an action-research program, it may be deceptive to regard all of the grant expenditures as having been used to support family planning activities as such. However, since more than 4,000 women received contraception protection in the fertility control clinic between 1962 and 1966, and since this "output" is included in the performance figures for the National Program in Chile, it would probably be even more deceptive to exclude this support (albeit indirect) from the program.

(b) Inputs

The $170,000 grant mentioned above constitutes the extent of Ford Foundation support to the family planning program for the period of our analysis. Originally, the grant was to have covered the three year period 1962-1964. The time period was later extended to 1966 without additional funds.

For purposes of analysis, we have averaged the actual expenditures, by category, over the five year period for which the grant applied. Thus, Ford Foundation support for the period 1964-1968 can be summarized, as Table III shows.

(2.) Rockefeller Foundation

(a) Background

Rockefeller Foundation support for a family planning research-action program began in 1962 with a grant to Harvard University for a collaborative effort with the University of Chile's Department of Preventative Medicine. In the years following this initial grant, a relatively large program has been developed under the direction of Dr. Benjamin Viel, head of the Department. Rockefeller Foundation has supported this

Table III

Ford Foundation Grants for Chilean Family Planning Program, by Major Categories, 1964-1968
(In U.S. Dollars)

	Direct	1964	1965	1966			Total
(3)	Vehicles and Equipment	18,480	18,480	18,480	-	-	55,440
	Indirect						
(6)	Administration	1,120	1,120	1,120	-	-	3,360
(8)	Publicity, Education	420	420	420	-	-	1,260
(9)	Research and Training	12,680	12,680	12,680	-	-	38,040
(10)	All Other Indirect Costs	1,280	1,280	1,280	-	-	3,840
	Total	33,980	33,980	33,980	-	-	101,940

Dr. Viel's program is not really a part of the National Family Planning program, since it is a university-based program designed for teaching and research purposes and as a demonstration to the government of what might be accomplished by a well-organized and well-run family planning service. However, dispensaries and clinics of the National Health Service are used for the work, and the performance figures obtained from the program are thus reflected in our "output" figures.

(b) Inputs

In addition to the 1962 grant, a grant of $42,000 was made to the Department in 1964, and from 1965 through 1969, three appropriations totaling $484,000 were made to the University of Chile for Dr. Viel's expanded program. Of the total amount, approximately three-fourths has gone for salary payments to doctors for IUD insertion, patient follow-up by nurses and nurse mid-wifes, nurse assistants in clinics, record clerks, and social workers for community work and follow-up.

In the summary of Rockefeller Foundation support presented below we have averaged out the $484,000 given for the five year period 1965-1969, allocated three-fourths of the yearly average to direct salaries, and one-fourth to administration. The 1964 grant was allocated to research (analysis and evaluation). Thus, Rockefeller Foundation support, by category, by year, is shown as Table IV.

(3.) Population Council

(a) Background

The Population Council has contributed relatively large sums of money over the five year period 1964-1968 for family planning research and action programs in Chile. They have, in fact,

Table IV

Rockefeller Foundation Financing of Chilean Family Planning Program, by Expenditure Categories, 1964-1968
(In U.S. Dollars)

	Direct	1964	1965	1966	1967	1968	Total
(1)	Salaries and Allowances	-	72,600	72,600	72,600	72,600	290,400
	Indirect						
(6)	Administration	-	24,200	24,200	24,200	24,200	96,800
(7)	Analysis and Evaluation	42,000	-	-	-	-	42,000
	Total	42,000	96,800	96,800	96,800	96,800	429,200

supported not only bio-medical and demographic research, but have also given technical assistance to Chilean institutions. Perhaps the most notable example of the latter is the support given to the "San Gregorio Project", in the southern area of Santiago.

(b) Inputs

Table V-A below is a list of all Population Council grants which probably have provided at least indirect inputs to the family planning program in Chile. Population Council's sources have indicated, though, that only a handful of these (M 65.34; D 66.85; M 65.34; T 67.93; D 66.85; M 67.34; I 68.101; M 68.21) should in the judgement of knowledge observers be considered as inputs to the program. Thus, while some portion of the other grants should also be included among the costs of obtaining results from the program, we have nevertheless included in our calculations only those grants marked with asterisks in Table V-A. The result, of course, is that we may be understating to some extent the true cost of the program. Or, in other words, some part of the $257,672 difference between the $373,636 total for the grants listed and the $115,964 total for the seven grants we are actually including in Table V should be charged to the program.

Summary of Total Program Inputs

Adding up the several pieces of the program just discussed (SNS, IPPF, Ford, Rockefeller, Population Council), we arrive at the results shown in Table VI. This indicates a sharply rising total of inputs, and that in 1968 the program absorbed nearly 1.3 million dollars, U.S.

"Direct" Expenses absorbed over 60 percent of the total. As was explained above, the "Other Field Expenses" (Category 5), is large because of

Table V

Population Council Support for the Chilean Family Planning Program, by Expenditure Categories, 1964-1968
(In U.S. Dollars)

	Direct	1964	1965	1966	1967	1968	Total
(1)	Salaries and Allowances	-	13,790	13,790	-	17,220	44,800
(2)	Contraceptive Supplies	-	1,764	1,764	8,766	1,420	13,714
(3)	Vehicles and Equipment	-	2,133	2,133	2,988	960	8,214
(4)	Training of Field Workers	-	-	-	-	-	-
(5)	Other Field Expenses	-	-	-	-	700	700
	Indirect						
(6)	Administration	-	-	-	-	-	-
(7)	Analysis and Evaluation	-	-	4,950	4,950	3,900	13,800
(8)	Publicity, Education	-	2,220	2,220	-	300	4,740
(9)	Research and Training	-	-	-	16,620	10,000	26,620
(10)	All Other Indirect Costs	-	-	-	3,376	-	3,376
	Total	-	19,907	24,857	36,700	34,500	115,964

Table V-A

Population Council Grants in Population to Chile for all Purposes (In U.S. Dollars)

1964	Catholic University (M 64.112)	$ 8,800
	University of Chile, Obstetrics (M 64.68)	12,000
		$ 20,800
1965	Catholic University (M 65.120)	9,900
	University of Chile	
	Obstetrics (M 65.57)	9,800
	Physiology (M 65.23)	8,000
	School of Health (D 65.014)	1,000
	School of Health (M 65.54)	2,000
	* Barros Luco Hospital (M 65.34)	20,000
		$ 50,700
1966	Catholic University (M 66.123)	$ 11,000
	Austral. University (M 66.72)	18,000
	Travel Grant (T 66.095)	1,100
	University of Chile	
	* Abortion Evaluation (D 66.85)	4,950
	* Barros Luco Hospital (M 65.34)	20,000
	Barros Luco Hospital (M 66.0117)	3,000
	Physiology (M 66.03)	5,000
	Obstetrics (M 66.62)	10,000
		$ 73,050
1967	National Health Service, "T" IUD Studies (M 67.0116)	$ 4,900
	*National Health Service (T67.93)	9,500
	Catholic University (M 67.30)	13,000
	CELADE, Travel Grant, Requena (T 67.0118)	650
	University of Chile	
	* Abortion Evaluation (D 66.85)	4,950
	"T" IUD Studies (M 67.0170)	5,000
	Physiology (M 67.11)	13,000
	General (M 67.0168)	5,000
	* Barros Luco Hospital (M 67.34)	23,500
	Barros Luco Hospital (M 67.74)	7,300
	Obstetrics (M 67.70)	10,000
		$ 96,800

Table V-A (cont'd)

1968	Catholic University	
	(M 68.0150)	$ 4,900
	(M 68.106)	22,000
	University of Chile, General	
	* (I 68.101)	10,000
	(M 67.94)	15,000
	(M 68.050)	3,964
	(M 68.0144)	5,000
	(M 68.0145)	3,430
	(M 68.020)	4,000
	* (M 68.21)	24,600
	Obstetrics	
	(M 68.68)	10,000
	Physiology	
	(M 68.0113)	5,000
	(M 68.149)	3,762
	(M 68.057)	5,000
	(M 68.076)	4,990
	(M 68.0110)	5,000
	(M 68.0146)	3,840
	Travel Grant, Croxotto	
	(M 68.0101)	500
	(M 68.0123)	800
	Travel Grant, Avendano	
	(M 68.0103)	500
		$132,286
Total		$373,636

* Directly related to family planning action program.

our inability to divide accurately the estimated total SNS input. Undoubtedly some of it belongs in category (1) (Salaries and allowances) which is for this same reason much smaller in percentage terms than is true for any other program studies. As far as research analysis or evaluation are concerned the Chilean program apparently has relatively small allocations for these purposes, even counting the Rockefeller, Ford and Population Council projects.

Cost per Unit of Output from the Program

Table VII summarizes the performance reported from the family planning program in Chile, chiefly in hospitals, clinics, and dispensaries of the National Health Service. These data were obtained from IPPF files, New York, and represent, to our knowledge, the most complete performance record for the Chilean National Program.

Table VII also summarizes our computations of Couple Years of Protection for the program. (These figures are derived according to the formula described earlier.)

The following data summarize the cost per CYP for the program. This is the measure of the relationship between inputs and outputs of the program which is to be used for comparison with similar programs in other countries.

1964 $\frac{\text{Cost}}{\text{CYP}}$ $\frac{163,208}{29,756}$

Cost per CYP $5.48

1965 $\frac{\text{Cost}}{\text{CYP}}$ $\frac{302,737}{72,363}$

Cost per CYP $4.18

1966 $\frac{\text{Cost}}{\text{CYP}}$ $\frac{791,147}{108,720}$

Cost per CYP $7.28

1967 $\frac{\text{Cost}}{\text{CYP}}$ $\frac{765,938}{136,212}$

Cost per CYP $5.62

Table VI

Total Financing From All Sources for Family Planning in Chile, by Expenditure Categories, 1964-1968
(In U.S. Dollars)

		1964		1965		1966		1967		1968		Total	
	Direct	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Perce
(1)	Salaries and Allowances	56,374	34.5	166,785	55.2	152,395	19.3	136,330	17.8	169,553	13.3	681,437	20.
(2)	Contraceptive Supplies	948	.6	6,994	2.3	143,870	18.2	149,434	19.5	9,822	.8	311,068	9.
(3)	Vehicles and Equipment	19,768	12.1	42,665	14.1	24,503	3.1	4,022	.5	3,888	.3	94,846	2.
(4)	Training of Field Workers	-	-	-	-	-	-	-	-	-	-	-	-
(5)	Other Field Expenses	2,827	1.7	6,450	2.1	202,080	25.5	200,341	26.2	500,977	39.2	912,675	27.
	Indirect												
(6)	Administration	21,161	13.0	56,083	18.5	239,744	30.3	244,711	31.9	572,306	44.7	1,134,005	34
(7)	Analysis and Evaluation	42,000	25.7	-	-	4,950	.6	4,950	.6	3,900	.3	55,800	1
(8)	Publicity, Education	2,208	1.4	5,587	1.8	7,145	.9	2,723	.4	2,744	.2	20,407	
(9)	Research and Training	12,680	7.8	12,680	4.2	12,680	1.6	16,620	2.2	10,000	.8	64,660	2
(10)	All Other Indirect Costs	5,242	3.2	5,493	1.8	3,780	.5	5,807	.9	5,074	.4	26,396	
	Total	163,208	100.0	302,737	100.0	791,147	100.0	765,938	100.0	1,278,264	100.0	3,301,294	100

Table VII

Output Measures of Chilean Family Planning Program, 1964-1968

	1964	1965	1966	1967	1968
IUD's*	11,264	20,467	33,086	45,361	55,887
Traditional Methods**	625	1,310	771	202	253
Orals	471	18,735	23,118	13,985	24,150
Rhythm	500	1,150	2,116	185	430
Sterilizations	-	-	-	1,120	2,578

* First insertions.

** New patients reached via "vaginal methods" plus condoms.

Couple-Years of Protection By Method, By Year

IUD	28,160	51,168	82,715	113,402	139,718
Vaginal	625	1,310	771	202	253
Oral	471	18,735	23,118	13,985	24,150
Rhythm	500	1,150	2,116	185	430
Sterilizations	-	-	-	8,438	19,335
Total CYP's	29,756	72,363	108,720	136,212	183,886

$$1968 \quad \frac{\text{Cost}}{\text{CYP}} \quad \frac{1,278,264}{183,886}$$

Cost per CYP $6.95

The unit costs shown here revealed a mildly cyclical movement, falling, rising, falling then rising again. The same movement was observed in other country costs per unit and, as indicated, may be partly due to the "lumpiness" of capital inputs occurring unevenly over time. In any case, the trend movement in costs per unit is slightly positive.

Table V (cont'd)

B) Government of Pakistan: Provincial Boards

	West Pakistan		East Pakistan		Total		Allocated to Category:
	1966-67	1967-68	1966-67	1967-68	1966-67	1967-68	
Pay of Officers	113,661.	186,859.	122,482.	175,390.	236,143.	362,249.	(6)
Pay of Establishment	84,918.	121,933.	106,048.	215,833.	190,966.	337,766.	(6)
Travelling Allowances	32,323.	50,183.	32,590.	32,526.	64,913.	82,709.	(6)
Other Allowances and Honoraria	22,351.	58,003.	43,443.	149,853.	65,794.	207,856.	(6)
Pay of Contingent Establishment	12,378.	22,505.	3,360.	3,619.	15,738.	26,124.	(6)
Contingencies	275,301.	742,597.	264,353.	802,140.	539,654.	1,544,737.	(6)
Publicity	137,668.	295,198.	142,420.	46,580.	280,088.	341,778.	(10)
Unforeseen	215,842.	186,796.	-	-	215,842.	186,796.	(10)
Contraceptive Materials	2,284,973.	1,344,842.	558,780.	1,610,859.	2,843,753.	2,955,701.	(2)
Research-cum-Training	209,104.	353,887.	546,512.	508,651.	755,616.	862,538.	(9)
Total	3,388,519.	3,362,802.	1,819,986.	3,545,451.	5,208,505.	6,908,253.	

Table V (cont'd)

C) Government of Pakistan: Districts

	West Pakistan		East Pakistan		Total		Allocated t
	1966-67	1967-68	1966-67	1967-68	1966-67	1967-68	Category:
District Headquarters	917,700.		494,700.		1,412,400.	2,395,592.	(6)
Allowance to Medical Supervisor/Civil Surgeon	59,400.		34,400.		93,800.	96,423.	(1)
Allowance to UC (Thana) Secretary	568,900.		1,056,700.		1,625,800.	2,373,766.	(1)
FP Officers (District and Thana)	3,650,100.		1,609,900		5,260,000.	7,402,545.	(1)
Publicity	732,400.		1,140,800.		1,873,200.	1,592,830.	(8)
Mobile AV Units	54,200.		35,400.		89,600.	177,943.	(5)
Transport	434,200.		112,300.		546,500.	1,390,728.	(5)
Urban Clinics	544,400.		139,200.		683,600.	1,144,329.	(1)
IUD Fees	2,108,300.		1,772,200.		3,880,500.	4,631,135.	(1)
Vasectomies	112,600.		1,842.700.		1,955,300.	7,651,336.	(1)
Salary to Dais	2,268,200.		2,833,900.		5,102,100.	5,769,312.	(1)
Contingencies	713,000.		713,000.		1,425,900.	1,741,680.	(5)
Part-time FP Doctors	273,000.		46,300.		319,300.	891,252.	(1)
Additional Staff for District Health Officers and Medical Supervisor/ Civil Surgeon	460,600.		66,000.		526,600.	696,089.	(1)
Training	47,800.		43,200.		91,000.	127,687.	(4)
Equipment for PT Clinics	146,500.		181,400.		327,900.	491,963.	(3)
Other	-		-		-	693,939.	(5)
Total	13,091,300.		12,122,100.		25,213,500.	39,268,449.	

Table V (cont'd)

D) Government of Pakistan: Extra-Budgetary Expenditures

From USAID Rupee Grant	1966-67	1967-68	Allocated to Category:
Population Growth Survey (Transferred to CSO)		200,000.	(7)
Vehicles		445,000.	(6)
Expenses of UN Evaluation Team		150,000.	(10)
Research and Evaluation		550,000.	(7)
Equipment and Uniforms for LHV		500,000.	(3)
Printing and Publication		200,000.	(8)
Publicity		800,000.	(8)
Incentives		100,000.	(1)
Support for Private FP Groups		300,000.	(5)
Training		100,000.	(4)
Construction of Clinics in EP		1,500,000.	(10)
Vascetomy Program in EP		5,500,000.	(1)
		10,345,000.	
Special Expenditures by Center from District Fund			
Contraceptive Supplies		6,420,000.	(2)

Table V (cont'd)

E) All Foreign Contributions

	U.S. Dollars		Rupees		Allocated to Category:
	1966-67	1967-68	1966-67	1967-68	
USAID					
Dollar Grant for Vehicles	$ 232,000	$ 450,000	1,099,680.	2,133,000.	(3)
Participant Training	150,000	170,000	711,000.	805,800.	(9)
Advisers	60,000	90,400	284,400.	428,496.	(9)
Special Grant to NRIFP for CRC-IUD Study	68,644	19,280	325,372.	91,387.	(9)
SIDA					
Commodities	756,407	903,264	3,585,369.	4,281,471.	(2)
Advisers, etc.	400,000	400,000	1,896,000.	1,896,000.	(9)
Ford					
Vehicles, Equipment	46,116	25,741	218,589.	122,012.	(3)
Research-Action Projects (All Expenses)	611,000	435,000	2,896,140.	2,053,200.	(9)
UNICEF					
Vehicles, Medical Supplies	378,000	377,000	1,791,720.	1,786,980.	(3)
UK					
Contraceptive Supplies	5,170	54,830	24,505.	259,894.	(2)
Population Council					
Fellowships					
Advisers	82,000	67,704	388,600.	320,916.	(9)
	$2,789,337	$2,993,219	13,221,455.	14,179,156.	

centives which go to our categories (9) and (2) respectively. Contingencies and other non-specific expenditures are put in our category (10), "Other Indirect Costs." Spending at the District level is mostly on wages, salaries, fees of various sorts and allowances. These all go in our category (1). Publicity spending is all considered "indirect" and goes to our category (8). The other allocations are relatively straight-forward. Foreign contributions are handled, by and large, on a lump-sum basis. This is not troublesome for the contraceptives which go to our category (2) or the Vehicles which were put in our category (3). The lumping of all "advisers" into our category (9), "Research and Training, is however, very arbitrary. The same can be said of the large Ford action-research projects. These latter were primarily research-oriented to begin with. One can argue that they become program-connected evaluation or training units only after 1967-68. This point is clearly debatable, however.

Table VI presents our final breakdown of total spending from all sources on family planning in Pakistan in the two years under review. It should also be noted that for 1966-67 especially Table VI is slightly inconsistent with the grand total of funds flowing into the program presented in the earlier section. This arises from the problems already discussed of "pipeline" funds and is not surprising. In effect, we are comparing "sources" versus "uses" in such a large and complex program. Our final reconciliation is actually quite good.

Output of the Program

Our standard measure of the performance or "output" of family planning programs is the Couple-Year-of-Protection. This was discussed at some length in earlier sections of this report. While a long way from being an ideal index of program performance the CYP is, still and all, a workable and meaningful index of what it purports to measure. Table VII presents the primary data on "outputs" - IUD's inserted, sterilizations performed, etc. - in Pakistan

Table VI

Total Spending on Family Planning in Pakistan, From all Sources, by Major Types of Expenditures

		1966-67		1967-68		Total Spending 1966-67 - 1967-68	
		Thousands of Rupees	Percent of Total	Thousands of Rupees	Percent of Total	Thousands of Rupees	Percent of Total
	Direct						
(1)	Salaries and Allowances	19,447.	37.2	36,256.	49.7	55,703.	44.5
(2)	Contraceptive Supplies	12,874.	24.6	7,497.	10.3	20,371.	16.3
(3)	Vehicles and Equipment	3,438.	6.6	5,034.	6.9	8,472.	6.8
(4)	Training of Field Workers	91.	0.1	228.	.3	319.	.3
(5)	Other Field Expenses	2,062.	3.9	4,304.	5.9	6,366.	5.1
			72.4		73.1	91,231	73.0
	Indirect						
(6)	Administration	4,009.	7.7	6,801.	9.3	10,810.	8.6
(7)	Analysis and Evaluation	772.	1.5	1,532.	2.1	2,304	1.8
(8)	Publicity, Education	1,873.	3.6	2,593.	3.6	4,466	3.6
(9)	Research and Training	7,257.	13.9	6,458.	8.9	13,715.	11.0
(10)	All Other Indirect Costs	496.	1.0	2,179.	3.0	2,675.	2.1
			27.6		26.9	33,970.	27.0
	Total	52,319.	100.0	72,881.	100.0	125,201.	100.0

in 1966-67 and 1967-68 and also derives the resulting CYP's achieved during these years.

Using the total cost of the program shown in Table VI (which is the most detailed and also slightly lower for 1966-67 than the earlier total) and the CYP's of Table VII results in the following estimated cost per CYP:

	1965 - 1966	1966 - 1967	1967 - 1968
Cost	32,000,000	52,319,000	72,881,000
CYP's	1,034,664	2,807,880	5,532,140
Cost per CYP			
- Rupees	30.92	18.63	13.17
- Dollars	$6.55	$3.95	$2.79

We include 1965-66 in the CYP and cost per CYP estimates because of the interesting trend in costs per CYP which it highlights. The cost data for 1965-66 are not available in any detail and it was not possible to include it therefore in our earlier analysis. In any case as already noted, the occurrence of the India-Pakistan War in September 1965 and the disruptions it entails make 1965-66 clearly an "abnormal" observation for most purposes.

Still the trend revealed is a plausible one with unit costs falling as the program expands. There are, however, indications that program inputs rose sharply in 1968-69 and cost per unit may very well show a rise in this period.

Table VII

Measures of Performance of Pakistan
Family Planning Program

	1965-66		1966-67		1967-68	
	Units	CYP's Implied	Units	CYP's Implied	Units	CYP's Implied
IUD's Inserted*	252,355	630,888	588,350	1,470,875	755,955	1,889,882
Sterilizations	5,400	40,500	48,729	365,468	266,809	2,001,068
Conventionals** Distributed	36,327,567	363,276	97,153,694	971,537	164,118,430	1,641,184
Total CYP's		1,034,664		2,807,880		5,532,140

* First Insertions.
** Condoms, etc.

Chapter VII

India

Background

The Indian Program is the largest program in the world. It is also probably the most senior since the Indian government approved the principle nearly fifteen years ago and substantial expenditures have been made for at least the last eight years. The Program has often been studied, evaluated, and twice reorganized yet its impact remains uncertain. In recent years USAID, the Swedish Development Authority and other international groups have stepped up their contributions and the program is entering yet another phase.

Budgets and Financing

In both the Second and Third Plans, the Family Planning Program has been included in the category of "centrally sponsored schemes". This means the actual implementation is in the hands of the states but the financing is largely by the central government through grants. The proportion of expenses borne by the central government has increased with the passage of time. From the beginning of the Third Plan the central government provided 100 percent of on recurring expenditures and 75 percent of most recurring expenditures. This grant program evoked an uneven response from the states and the weaker states had trouble raising the necessary matching funds. Therefore, in 1966 the central government grants for all non recurring expenses and some recurring expenses such as education and research were increased to 100 percent. The central government grants also provided for 90 percent of all other recurring expenses. The average contribution of the center during this period was from 96 to 97 percent of total expenses.

Beginning with the fiscal year 1969 - 70, 100 percent of all expenses both recurring and non recurring were met by grants from the central government. India is committed to this policy for the duration of the Fourth Plan and the upcoming Fifth Plan.

Grants are also made to private voluntary groups to the extent of 100

percent of all expenditures.

In addition to all Indian government inputs - Central plus state - substantial amounts of foreign aid have flowed into the program. Ford Foundation activities, chiefly in research, evaluation and training have been substantial even since 1959 and, on a smaller-scale, the Population Council has also been involved since 1964. In the last two years, as noted, financial contributions from USAID, SIDA and others have increased markedly.

The overall magnitudes of spending over time are indicated by the following figures:

	Total Expenditures (Rupees)
First Plan (1951-52 to 1955-56)	1,451,000
Second Plan (1956-57 to 1960-61)	21,558,000
Third Plan (1961-62 to 1965-66)	254,832,000*

Tables I, II and III summarize total GOI spending.

Foreign Aid and Assistance

The following are our best estimates of foreign aid by major source.

(1) U.S.A.I.D.

Aid from this source is channeled through the Government of India Family Planning Program and thus is included in program expenditures by the Indian government.

In the period through 1967-1968 USAID concluded agreements to provide consultants, fellowships and commodities totalling approximately $1,470,000. Some of the purposes towards which this was denoted was:

$560,000 for oral contraceptive demonstration

75,000 for the Demographic Training and Research Center Bombay

82,500 for the Family Planning Training and Research Center Bombay

In addition 100 million pieces of condoms was to be provided for the

---

*. provisional pending final reports from seven states.

Table I

Central Government Expenditure on Indian Family Planning Program, 1961-62 - 1968-69
(Thousands of Rupees)

	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68 (Provisional)	1968-69 (Estimated)
Grants to Local Bodies/ Voluntary Organizations	3,060.	5,586.	5,251.	7,447.	10,652.	13,409.	10,455.	
Family Planning Institute	1,226.	46.	497.	396.	2,000.	-	-	
Other Expenditure	363.	1,937.	2,059.	3,963.	4,931.	10,825.	46,855.	
Hindustan Latex Ltd. Purchase of Equity Shares	-	-	-	-	-	1,500.	3,500.	
Grants to State Governments (Central Share)	6,824.	16,409.	5,324*	30,003*	56,696.	108,030.	230,000.	
Total Spending	11,473.	23,978.	13,131.	42,309.	74,279.	133,764.	290,810.	306,200.
Budget Provision	35,500.	42,500.	27,800.	44,500.	63,963.	130,000.	310,000.	370,000.

Fiscal Year, April 1 - March 31.

* Late claims in 1963-64 were carried over to 1964-65.

Table II

Total Expenditure on Family Planning Program Occurring in States (Including State Share)
(Thousands of Rupees)

	States	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68 (Provisional)*
1.	Andhra Pradesh	49	273	347	1,273	3,800	11,738	15,213
2.	Assam	304	1,337	1,189	1,274	2,035	1,539	2,301
3.	Bihar	316	180	186	510	1,198	4,991	11,472
4.	Gujarat	334	420	2,086	5,179	5,970	8,612	12,177
5.	J&K	29	60	85	108	394	474	1,284
6.	Haryana	-	-	-	-	-	1,350	4,054
7.	Kerala	261	462	1,349	3,834	7,270	9,978	14,694
8.	Madhya Pradesh	447	792	1,858	3,096	3,700	6,929	12,539
9.	Tamil Nado	1,903	3,105	1,346	2,212	6,537	14,824	10,990
10.	Maharasthra	259	757	1,741	2,743	9,021	14,647	27,613
11.	Mysore	712	742	644	1,151	3,482	4,942	7,760
12.	Orissa	35	282	613	2,502	5,213	7,248	10,112
13.	Punjab	318	381	416	1,127	4,567	4,871	8,313
14.	Rajasthan	730	1,225	938	1,568	2,492	5,089	8,618
15.	Uttar Pradesh	1,218	1,742	2,628	5,975	8,628	9,698	24,241
16.	West Bengal	1,211	936	1,019	2,253	4,204	7,328	15,696
17.	Nagaland	-	-	-	-	-	-	-
		8,126	12,697	16,445	34,805	68,511	114,258	187,069
1.	Delhi	No expenditure was incurred by Territory Admn. but grant was given to Local Bodies & Vol. Orgs. by the Center.					215	327
2.	Himachel Pradesh	09	62	57	72	205	581	1,031
3.	Manipur	23	20	05	18	50	45	187
4.	Tripura	14	40	11	32	69	86	148
5.	Pondicherry	9	8	12	23	87	99	169
6.	Goa, Daman & Diu	-	-	23	35	93	69	143
7.	A&N Island	-	-	-	-	-	-	1

Table II (cont'd)

States	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68 (Provisional)
8. L.M.A. Island	-	-	-	-	-	-	5
9. NEFA	-	-	-	-	-	-	-
10. D&N Haveli	-	-	-	-	-	11	10
11. Chandigarh	-	-	-	-	-	4	112
	8,181	12,129	16,557	34,987	69,016	115,368	189,202

*Based on Budget Provision for 1967-68.

Table III

Total Government Spending on Family Planning in India
(Thousands of Rupees)

	Central Government Spending*	State Government Spending**	Total Spending
1961-62	11,473.	1,302.	12,775.
1962-63	23,978.	2,288.	26,266.
1963-64 ***	13,131. ***	11,121.	24,252.
1964-65	42,309.	4,802.	47,111.
1965-66	74,279.	11,815.	86,094.
1966-67	133,764.	16,078.	149,842.
1967-68****	290,810.	-	290,810.
1968-69	306,200.	-	306,200.

* Table I.
** Computed as difference between sub total in Table II and "Central Government Grants to State Governments" shown in Table I.
*** Annual totals do not reflect true resource input due to carry over of late claim by states.
**** Provisional.

Commercial Distribution Program (Nirodh).

During the U.S. fiscal year 1968 USAID concluded agreements to provide approximately $7.7 million "to finance a comprehensive program including technical assistance, organizational help, advanced training in the United States, contraceptives, program equipment and research." This sum can be broken down into the following categories

$4,621,000 Commodities

345,000 Technicians

55,000 Participant training

2,700,000 Program Loan for imported components of vehicles

In addition to this $11,143,422 worth of rupees generated out of PL 480 section 104 (H) was to be made available for experimental and innovative research during Fiscal 1968 and Fiscal 1969. Actual spending during both 1966-67 and 1967-68 lagged far behind these obligated amounts. Indeed, total dollar spending in 1966-67 only totalled $74,000 and in 1967-68 total dollar spending reached only $531,000.

Other agreements call for USAID in Fiscal 1969 to provide $721,000 to the Indian Family Planning Program broken down as follows:

$378,000 Commodities

307,000 Technicians

36,000 Participant training

In addition $7,894,737 worth of rupees generated out of PL 480 section 104 (H) will be made available for procuring, operating and maintaining family planning vehicles. Once actually received, AID contributions of commodities, equipment and the like are included in the GOI Budget. Advisers and participant training expenditures are however, not.

(2) The Ford Foundation

The Ford Foundation has made grants for the support of Family Planning

Activities in India totalling $6,871,000.

The objectives for which this was spent are as follows:

$2,012,000	Research and Training in Reproductive Biology
300,000	Family Planning Fellowship Program
568,000	Demonstration and Training in Population Statistics
465,000	Training, research and evaluation services for family planning program
3,526,000	Integrated Family Planning and Health Programs
$6,871,000	

The last item is a grant to assist the Ministry of Health and Family Planning, Government of India over a four year period in its integrated family planning and health programs. This consisted of an initial grant of $1,246,000 for the period June 1964 to June 1966. This was then supplemented by a grant of $2,280,000 for the period August 1966 to August 1969. These sums are included in the Government of India expenditures on family planning.

According to the Ford office in New Delhi, a slightly smaller total has actually been spent in the same period. The functional expenditure categories for all the grants combined are estimated to be as follows:

Categories of Support	Funds Expended
Foreign experts	$ 2,793,295
Imported equipment and books	1,241,954
Foreign study tours and observation trips	905,648
Support for local staff and other rupee expenses	853,526
Support for local equipment and supplies	402,765
Vehicles	47,900
Building costs and architectural services	238,000
	$ 6,483,088

This total cuts across the budgetary, non-budgetary distinction as to

how the funds actually flow into the program.

Over the past ten years this would amount to an average contribution of some $700,000 per year, some half of which was extra-budgetary or above and beyond GOI spending.

(3) Population Council

Details of all Population Council spending (inclusive of fellowships) in India since 1964 is shown in their Annual Reports. Even allowing for fellowships, the average annual amount is under $100,000.

(4) Sweden

According to the government of Sweden its contributions to the Indian Family Planning Program (in U.S. Dollars) are as follows:

Year	Amount
1966-67	$158,000
1967-68	202,000
1968-69	138,000
1969-70	100,000 (planned)

Its contributions include 1,500,000 gross of condoms, 20 printing units, 250 tons of paper, 500 tons of glazed newsprint, a contingency fund of $20,000 and machines with a total value of $163,000.

(5) Denmark

Denmark has provided 10,000 pieces of IUD (antigon) for clinical trials.

(6) Japan

Japan provided a $400,000 loan (in Yen) for the purchase of condoms.

Thus in summary, Ford has been putting roughly $700,000 per year in since 1959. Pop Council roughly $100,000 per year since about 1964. In the earlier years other foreign aid was minor. Since 1967-68 USAID has been a large donor with roughly $1,500,000 in 1967-68 and $8,000,000 in 1968-69. Sweden and Japan have also given substantial amounts beginning in 1967-68, with our estimates being: Japan - $400,000; Sweden - $500,000.

Summary of Total Spending

Table I presents official government of India figures on total expenditure on family planning by the central government. Table II presents total expenditures actually occurring at the state level including that share of the central government fundssent out to the states but also funds allocated to family planning by the states themselves. Table III shows central government plus state spending thus reaching a true total of all official spending wherever occurring and for whatever purpose. Table IV presents total foreign inputs to the program including, for USAID, those already counted as spending by Tables I - III plus the dollar grants which are "extra-budgetary".

Table V finally presents our final best estimate of total spending by fiscal year by major source. It represents official GOI expenditures (state and federal) plus Ford, USAID, Pop. Council and other foreign donors which are extra-budgetary. As may be seen, the amounts have risen sharply in recent years and in 1968-69 an amount equivalent to 50 million dollars were allocated to family planning.

Spending by Major Category

Table VI provides a breakdown of total projected spending by GOI according to the major type and purpose of expenditure. This table is based on budgeted spending in these years and differs slightly from actual spending. No breakdown for actual total expenditures are available although one for 1968-69 should be completed soon by the Family Planning Department.

In reporting their budgeted expenditures the government of India reports do not employ the same ten categories we have selected for our study and it was necessary to reallocate their categories into ours. In general, the following rules for this reallocation were employed:

Table IV

Total Foreign Aid
From all Sources for Family Planning
in India, 1961-62 - 1967-68
(In U.S. Dollars)

	Population Council	Ford Foundation	SIDA	Others	USAID (Dollars)*	USAID (Rupees)**	Total
1961-62	-	350,000	-	-	-	-	350,000
1962-63	-	350,000	-	-	-	-	350,000
1963-64	-	350,000	-	-	-	-	350,000
1964-65	75,610	350,000	-	-	-	-	425,610
1965-66	201,234	350,000	-	-	-	-	551,234
1966-67	91,073	350,000	158,000	-	74,000	-	673,073
1967-68	82,715	350,000	202,000	-	531,000	3,947,368	5,113,083
1968-69	28,006	350,000	138,000	400,000	2,677,000	7,196,054	10,789,060

* Dollar spending only for advisers, participant training, commodities, etc.
** Dollar equivalent of Rupee grants to GOI already reflected in GOI expenditures of Table I.

Table V

Estimated Total Expenditures From all Sources on Family Planning in India, 1961-62 - 1968-69
(Thousands of Rupees)

	Total Indian Government Spending	Ford Foundation	Population Council	USAID*	SIDA	Other Foreign Aid	Totals** Thousands of Rupees	Totals** Thousands U.S. Dollars
1961-62	12,775	1,650	-	-	-	-	14,425	3,069.
1962-63	26,266	1,650	-	-	-	-	27,916	5,940.
1963-64	24,252	1,650	-	-	-	-	25,902	5,511.
1964-65	47,111	1,650	355	-	-	-	49,116	10,450.
1965-66	86,094	1,650	946	-	-	-	88,690	11,825.
1966-67	149,842	1,650	683	550	1,185	-	153,910	20,521.
1967-68	290,810	1,650	616	3,982	1,515	-	298,573	39,810.
1968-69	306,200	1,650	210	20,077	1,035	3,000	331,962	44,261.

* Includes only dollar spending on advisers, participant training, etc. not reflected in GOI budget.

** Rupees converted to dollars as 7.5 to $1.00 after 1965-66 but 4.7 to $1.00 prior to that.

Table VI

Budgeted Government of India Expenditures for Family Planning Program, by Major Categories, 1966-67 - 1968-69*

		1966-1967	1967-1968 (Provisional)	1968-1969 (Estimated)
	DIRECT			
(1)	Salaries and Allowances	74,635	120,497	125,645
(2)	Contraceptive Supplies	11,815	32,500	34,620
(3)	Vehicles and Equipment	24,800	97,640	106,483
(4)	Training of Field Workers	22,487	12,304	13,743
(5)	Other Field Expenses	-	-	-
	INDIRECT			
(6)	Administration	2,898	6,914	7,288
(7)	Publicity, Education	6,520	30,011	30,235
(8)	Analysis and Evaluation	-	-	-
(9)	Research and Training	3,623	9,022	14,938
(10)	All Other Indirect Costs	-	1,112	2,400
	Total	146,778	310,000	335,352

*Slightly inconsistent with Tables IV and V.

GOI Category	Allocated to our catetory number
Training of trainers, dias, etc.	(4)
Equipment, supplies	(3)
Contraceptives	(2)
Salaries, compensation to acceptors	(1)
Administration, organization, central family planning corps	(6)
Analysis, evaluation	(7)
Education, publicity	(8)
Fellowships	(9)
Research	(9)
Other	(10)

The foreign aid which was truly extra-budgetary (that is, not included in the GOI figures on expenditures) was allocated as follows: Population Council - category (9) (Research and Training); Ford Foundation - category (7) (Analysis and Evaluation); USAID dollar grants allocated to category (2) (Contraceptives), category (3) (Vehicles and Equipment) and category (7) (Analysis and Evaluation) on the basis of details furnished by the USAID mission in New Delhi; SIDA and other foreign aid to category (2).

Adding these extra-budgetary foreign aid components to the by category figures on GOI spending of Table VI produces then our Table VII, our best available estimate of spending by the ten major categories employed throughout this study.

The breakdown of costs reflects very sharply the overwhelming local orientation of the Indian program. Over 80 percent of total spending has gone for "direct" items. On the other hand, analysis and evaluation (category 7) claimed only 1 percent or less indicating perhaps an unemphasis on this function.

Performance and Output Data

Data and a consistent chronology of the Indian Family Planning program go back to 1956 but as noted above the program moved into high gear only in about 1965. The accomplishments of the program must be related to the method stressed and this has varied from time to time. In the period 1956 to 1965 sterilization and female-oriented "conventionals" (foam, diaphram, etc.) were

Table VII

Total Spending on Family Planning in India From all Sources, By Expenditure Categories, 1966-67 - 1968-69*
(Thousands of Rupees)

		1966-67		1967-68		1968-69	
		Amount	Percent	Amount	Percent	Amount	Percent
	Direct						
(1)	Salaries and Allowances	74,635	49.5	120,497	37.9	125,645	34.8
(2)	Contraceptive Supplies	13,000	8.6	34,015	10.7	46,655	12.9
(3)	Vehicles and Equipment	24,800	16.4	98,540	31.0	114,403	31.7
(4)	Training of Field Workers	22,487	14.9	12,304	3.9	13,743	3.8
(5)	Other Field Expenses	-	-	-	-	-	-
			89.5		83.6		83.2
	Indirect						
(6)	Administration	2,898	1.9	6,914	2.2	7,288	2.0
(7)	Analysis and Evaluation	1,650	1.1	1,650	.5	1,650	.5
(8)	Publicity, Education	6,520	4.3	30,011	9.4	30,235	8.4
(9)	Research and Training	4,856	3.2	12,738	4.0	18,938	5.2
(10)	All Other Indirect Costs	-	-	1,112	.3	2,400	.7
			10.5		16.4		16.8
	Total	150,846	100.0	317,781	100.0	361,037	100.0

* Based on GOI data from Table VI plus foreign aid data from Table IV. Hence, totals slightly inconsistent with Table V.

the main methods pushed. Beginning in 1965 the IUD entered the picture and in short order came to play an important role. More recently, since about 1968, the male-oriented condom program has been added. Thus, our evaluation of accomplishment must deal with this changing "mix" of methods and fortunately the Couple-Years-of-Protection Index is flexible enough to handle this problem (See Section I above). Table VIII presents our raw "output" series together with the CYP's implied. For earlier years only sterilizations are available and the absence of "conventionals" certainly tends to understate results. Thus we concentrate on the period 1961-62 to 1967-68 when the combined data makes possible a CYP analysis which, allowing for all the problems inherent in the approach, is still meaningful. Table VIII also gives the CYP results by states and then also costs per CYP using the cost data of Tables III and IV.

Looking at the Rupee costs per CYP, one finds quite a bit of stability in the series. Costs per unit rise up through 1964-65, falling as the IUD program got underway in 1965-66, rising again then in 1967-68, sharply so in 1968-69. Overall, the trend over time is toward a slight increase in costs per CYP. (The dollar costs per CYP series is complicated by the exchange rate change which occurred in 1966.)

Table VIII

Measures of Output of Family Planning Program in India

Methods	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69
Sterilizations*	104,585	157,947	170,246	269,505	476,689	868,350	1,828,328	1,664,064
IUD's Inserted**	-	-	-	-	812,713	917,303	662,178	478,328
Condoms Distributed	25,440,000	33,050,000	25,310,000	45,630,000	44,660,000	30,160,000	48,650,000	60,000,000***
Couple Years of Protection Implied								
Sterilizations	784,388	1,184,602	1,276,845	2,021,288	3,576,668	6,512,625	13,712,460	12,480,480
IUD's	-	-	-	-	2,031,782	2,293,258	1,655,445	1,195,820
Condoms	254,440	330,500	253,100	456,300	446,600	301,600	486,500	600,000
Total CYP's	1,038,828	1,515,102	1,529,945	2,477,588	6,055,050	9,107,483	15,854,405	14,276,300

* Male and female.
** First insertions.
*** Rough estimate.

Table IX

Cost Per Couple Year of Protection in India

	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69
Cost (Thousands of Rupees)	14,425.	27,916.	25,902.	49,116.	88,690.	155,910.	298.573.	331,962.
CYP's (Thousands)	1,039.	1,515.	1,510.	2,478.	6,055.	9,108.	15,854.	14,276.
Cost Per CYP								
Rupees	13.88	18.55	17.15	19.92	14.65	16.90	18.83	23.25
U.S. Dollars	$ 2.95	3.95	3.65	4.22	1.95	2.25	2.51	3.10

Chapter VIII

Tunisia

History

Tunisia has been concerned about population growth and particularly its social effects since independence in 1957. Legislation passed in recent years reflects this concern. Welfare support is limited to the first four children. Polygamy has been abolished and women have been emancipated. All restrictions on import and sale of contraceptives were removed in 1961. In 1965, abortion was made legal for women with five or more living children.

Conversations between the Ford Foundation and the Tunisian government in 1962 led, in May 1963, to agreement for a two-year experimental program. The operational phase of this experiment, concentrating on the I.U.D., began in June 1964 in twelve maternal and child health centers and in several hospitals. Insertions went from 1,151 in the last six months of 1964 to 12,315 in 1965.

Based on this success, the government decided to make family planning services available on a national basis, effective in mid-1966. A target of 60,000 insertions per year was set. To this end over eighty doctors were trained, loop centers were established at all major hospitals (10 maternal and child health centers and 14 hospitals now offer this service), ten mobile teams were created to make periodic visits to maternal and child health centers in about 150 villages. A family planning division was created in the Ministry of Health.

On August 12, 1966, President Bourguiba made a major speech on "Birth Control as a Factor of Development" in which very broad and general policy lines about family size and population objectives were stated. The program has gained momentum since these beginnings.

In 1967, under the Ford Foundation/Population Council program, experimental amounts of condoms (3,000 gross) and of pills (30,000 cycles)

were introduced in selected family planning clinics. Population Council has also provided technical assistance to the program in the form of added advisers. The Swedish Government has provided the services of a communications media specialist on a full-time basis since January 1968. A large-scale National Demographic Survey was undertaken in 1968 to provide, among other things, a baseline for evaluating the impact of the program. This survey was financed in part by PL 480 Dinars made available through the National Institutes of Health, of the U.S. Department of HEW.

Source of Funds

The program in Tunisia is relatively uncomplicated, so far as its financing is concerned. The largest source is, in the years prior to 1969 at least, the government of Tunisia itself. USAID has assisted substantially also from local counterpart funds and Ford and Population Council have contributed research and evaluation services. No consistent breakdown of total spending appears to be possible prior to 1968 and our analysis thus centers on 1968 and 1969.

Tables I and II represent the funds allocated for the program in 1969 as reflected in the original plan of January 1968. The total in U.S. Dollars (1 Dinar = 1.9 U.S. $) would have come to $1,090,000. In fact, spending lagged, and spending from the two major sources - AID Dinar balances and Government of Tunisia - amounted for calendar 1968 to only about 146,000 Dinars, broken down as shown in Table III.

To this the costs of the Demographic Survey, some 100,000 Dinars must be added. Since the survey is not solely for the purposes of evaluating the program, we arbitrarily assign half - some 50,000 - Dinars to "Research and Evaluation" on this score. The Ford Foundation's support of mobile medical teams - 17,000 Dinars - must also be added.

It must also be noted that the family planning program benefits from use of the some 250 regular health centers scattered throughout the country.

Table I

Combined Dinar Budget for Family Planning in Tunisia, 1968*
(In Thousands of Dinars)

	AID	GOT	HEW	FORD	Total
Personnel					
Central Office Staff	9	-	-	-	9
Materials Production Staff	4	-	-	-	4
Post-Partum Social Worker	12	4	-	-	16
Mobile Education Team	17	-	-	-	17
Mobile Medical Team	9	41	-	17	67
Salary Supplements and Contingencies	45	-	-	-	45
	96	45		17	158
Supplies and Equipment					
Locally Made Drugs	29	5	-	-	34
Office Equipment	6	-	-	-	6
Transport	9	-	-	-	9
Other	15	-	-	-	15
	59	5			64
Research and Evaluation					
Demographic Survey	-	55	48	-	103
CERES Contract	5	-	-	-	5
Medical School Contract	9	-	-	-	9
	14	55	48		117
Training					
Local Seminars	5	-	-	-	5
Participant Travel	-	1	-	-	1
	5	1			6
Operations Costs					
Rent	1	-	-	-	1
Vehicle Operations	12	13	-	-	25
	13	13			26
	187	119	48	17	371

* As reflected in original PROP, January 18, 1968, with modification thereafter.

Table II

Dollar Budget for Family Planning in Tunisia, 1968*
(In Thousands of U.S. Dollars)

	AID	Ford	Others	Total
Personnel				
Public Health Administrator	-	-	-	-
Health Educator Adviser	6	-	-	6
Medical Adviser	-	35	-	35
Administrative Assistant	-	30	-	30
Communications Adviser	-	-	35	35
Health Educators	-	-	8	8
Consultants	-	10	-	10
	6	75	43	124
Supplies and Equipment				
Contraceptives	43	-	-	43
Drugs	48	-	-	48
Statistical Equipment	19	-	-	19
Reproduction Equipment	42	-	-	42
Audio-Visual Equipment	32	-	-	32
Medical Instruments	44	-	-	44
	228			228
Training				
M.S. Program in Health Education	15	-	-	15
Short Course Programs	3	-	-	3
	18			18
Research				
Demographic Survey	-	15	-	15
		15		15
	252	90	43	385

* As reflected in original PROP, January 18, 1968.

Table III

Actual Dinar Spending on Tunisian Family Planning Program, 1968

Personnel	79,475
Supplies and Equipment	47,509
Research and Evaluation	1,018
Training	3,339
Operating Costs	14,158
	145,499

That is, the regular staff of these centers spends some time either engaged directly in family planning or in activities supporting the full-time family planning field workers. It has been estimated that this probably amounts to 100 Dinars per center or about 25,000 Dinars in all.

Thus, all in all, it appears that the program used resources representing some 239,200 Dinars in 1968. This is the equivalent of $454,480.

Dollar spending also lagged behind the budgeted amounts, especially regarding AID delivery of equipment and supplies. Assuming that all of AID personnel and training budgeted was spent and half the Supplies and Equipment, we arrive at the first column of Table IV. Ford dollar spending reflects the total amount reported spent by Population Council (who administer the project under grant T 66.31) in 1968 distributed by categories according to the breakdown of previous large Ford/Pop.Council inputs into the program (Grant D 63.73) for which a detailed expenditure breakdown was available. Direct Population spending is mostly advisers and consultants and is taken from Population Council reports. The largest item in "Other" is an audio-visual communications adviser furnished by the government of Sweden. This dollar spending comes to some $372,000.

Thus, in 1968, from all sources - foreign and local - the Tunisian family planning program appears to have spent about $826,480.

The projected 1969 budget called for a sharp increase in Dinar spending by both the government of Tunisia and from AID Dinar balances. These are shown in Table V. Ford, Population Council, SIDA, and other foreign donors are expected to about maintain their 1968 level, while allowing for pipeline shipment USAID dollar spending in 1969 may be substantially above 1968 levels. All in all, the 1969 total spending will very likely be in the neighborhood of $1.2 million dollars.

Spending by Major Function

On the basis of the detailed tables below, we have reaggregated the data

Table IV

Actual Dollar Spending For Family Planning in Tunisia in 1968

	AID	Ford	Population Council	Others*	Total
Personnel	6,000	40,960	83,515	43,000	173,475
Supplies and Equipment					
Contraceptives	21,500	14,614	-	-	36,114
Drugs	24,000	-	-	-	24,000
Statistical Equipment	9,500	↓			↓
Reproduction Equipment	21,000	34,241			102,741
Audio-Visual Equipment	16,000	↑			↑
Medical Instruction	22,000				
	114,000				
Evaluation and Research		15,787	-	-	15,787
Participant Training	18,000	1,067	-	-	19,067
	138,000	106,669	83,515	43,000	371,184

* SIDA, Peace Corps, etc.

Table V

Projected 1969 Budget for
Tunisian Family Planning Program
(In Dinars)

		Total	GOT	AID
1)	Salaries	186,375	124,755	61,620
2)	Special Allocations	9,624	-	9,624
3)	Consultants and Home Visits	38,100	-	38,100
4)	Per Diem Expenses	23,240	4,800	18,440
5)	Research and Contract Services	22,000	-	22,000
6)	Printing and A. V.	15,000	-	15,000
7)	Seminars	10,000	-	10,000
8)	Subsidies to FPA	8,000	-	8,000
9)	Medical Equipment	40,000	30,000	10,000
10)	Rent, Utilities, etc.	38,000	15,800	23,000
11)	Construction	150,000	-	150,000
		541,139	175,355	365,784

using the ten-category breakdown employed for purposes of this study. Table V presents these summary results.

In the case of the reported actual 1968 spending of Dinars (Table III above) most of the items reported could be fitted into one of our ten categories very easily. Thus, "Supplies and Equipment" becomes Category (3), "Vehicles and Equipment"; "Training" is Category (4); "Research and Evaluation" becomes category (7); "Operating Costs" is put in Category (5) - "All Other Field Expenses." "Personnel", however, includes administrative and field personnel and, on the basis of previous budget estimates, we allocated 10 percent of the reported spending to Category (6) "Administrative" and the remainder to Category (1) "Salaries and Allowances". We also included in Category (1), the rough estimate of an additional 100 Dinars per health center (25,000 Dinars in all) to allow for time spent by regular field staff doing family planning.

In the case of the dollar inputs, the majority were easy to fit into one or another of the ten categories. The Population Council "Personnel" item of Table IV was split, however, 50-50 between Category (6) "Administration" and Category (7) "Analysis and Evaluation".

One or two other minor adjustments were made and the result is that Table VI's total does not quite agree with our previously derived figure for total spending in 1968. The difference is minor, however.

The resulting breakdown of costs by major categories (Table VI) is in line with the other programs reviewed. "Administration" (Category (6)) is relatively larger than usually the case as is "Vehicle and Equipment" (Category (3)). But with only one year to observe we cannot be sure these are temporary shifts in the composition of inputs due to a highly particularized combination of inputs.

Program Output

The performance of the program in 1968 is summarized in Table VII.

The Couple-Years-of-Protection are derived using the rules previously

Table VI

Total Spending From All Sources on Family Planning in Tunisia by Major Category, 1968

	Dinars	Dollars	Total*	Percent Breakdown	
Direct					
1) Salaries and Allowances	107,475	-	204,202	24.8	
2) Contraceptive Supplies	-	36,114	36,114	4.4	
3) Vehicles and Equipment	47,509	102,741	193,008	23.4	
4) Training of Field Workers	3,339	-	6,344	.8	
5) Other Field Expenses	14,158	24,000	50,900	6.2	
					59.6
Indirect					
6) Administration	9,000	133,475	150,575	18.4	
7) Analysis and Evaluation	51,018	55,787	150,721	18.4	
8) Publicity and Education	5,000	-	9,500	1.6	
9) Research and Training	-	10,067	19,069	2.2	
10) All Other Indirect Costs	-	-	-	-	
					40.4
			$820,433		100.0

* In Dollars; Dinars converted at rate of 1 D = 1.90 $

Table VII

Output Measures of Tunisian Family Planning Program, 1968

	Number	CYP's Implied
IUD's Inserted	9,301	23,253.
Pill Cycles Distributed	21,357	1,100.
Sterilizations	1,610	12,075.
Abortions	2,211	2,211.
Months of Conventionals Distributed	13,575	1,131.
		39,770.

* Using methodology discussed in earlier sections of this report.

discussed. In this case the "conventionals" reported are actually visits by clients to a clinic to claim a month (or more) of supplies of some conventional. We count each such visit as one couple-month of protection. Abortions are considered to generate one CYP each.

Costs per Unit

Thus, the program in 1968 seems to have generated CYPs of about 40,000 at a cost of $800,000. This implies a cost per CYP of about $20.00.

This figure is high relative to other programs reviewed here and needs some interpretation. The Tunisian program launched its major IUD program in 1966. In 1966 and 1967 substantial numbers of IUD's were inserted, even while the program was spending less money than it did in 1968. Thus, were data available on costs for these earlier years, the resulting cost per CYP would undoubtedly be lower than the 1968 figure. Thus, the Tunisian program probably also has experienced "cyclical" downs followed by ups in its costs per unit of output. In seeing only 1968 we are observing a peak figure at a transitional stage of the program. There is every reason to think unit costs in Tunisia will fall as a new, more broadly - based, pill - IUD - conventionals program begins to move into high gear.

Chapter IX

Costs and Outputs: A Summary and Some Conclusions

We are now in a position to bring together on a common basis the evidence on costs, outputs and performance presented in the preceeding chapters for the six countries. The limitations, qualifications and difficulties associated with the data generated for each country have, we feel, been made clear and, while we will not repeat these warnings, they must still be borne in mind in interpreting our overall results. The methodological and conceptual discussion of Chapter II is clearly also relevant again at this point.

Nevertheless, we do in the end feel our data are meaningful and will now present what seem to be the most important findings.

Actual Costs and Outputs

Table I presents a summary of total expenditures (in U.S. Dollars) from all sources and for all purposes related to the family planning programs in the six countries studied. Total program outputs (in terms of the index discussed above, Couple-Years-of-Protection) also are shown. The last column derives our index of apparent cost per CYP. Figure 1 shows the trends in cost per CYP for those countries for which three or more observations are available. Since, in nearly all cases, volume (total CYP's) is increasing steadily with time, these figures also reflect the cost-per-unit vs. program volume relationship. In only one case, Pakistan, is there a clear tendency for cost per CYP to fall over time (as program volume grows). However, in two other countries, there is a trend toward falling cost per CYP in the first several years of the program, followed by rising costs per CYP as the scope and nature of the program changes. This type of movement may be seen in: India between 1962-63 and 1965-66; and Taiwan between 1964 and 1967. In two other countries - Chile, Korea - there seems a tendency for unit costs to rise more or less steadily as volume grows, although here too some traces of cyclical fluctuations may be seen.

As a final test, we considered all cost per CYP observations in relation to their program volume as one point on an overall cost per CYP-volume function

and, using simple linear correlation techniques, fitted the apparent regression line. Figure 2 presents the results. The correlation coefficient was so low as to be statistically insignificant and the slope of the fitted line was nearly zero.

Thus, two conclusions seem to follow from this analysis of costs and outputs and their relationships:

(1) There seems no single relationship adequately descriptive of changes in cost per CYP over time for all the programs. In other words, there may be fundamental dissimilarities in the programs leading to different relationships between costs and outputs.

(2) Likewise, no clear or dominant relationship between program volume and costs per unit emerge from our data. As a rough rule, costs per unit seem more likely to be constant with program volume than to rise or fall markedly. In effect, the program's "designed capacities" change so rapidly as to make movements along any given short-run average cost curve less important than movements from one short-run curve to another.

Cost Per CYP vs. Other Measures

Since cost per CYP is a relatively unfamiliar index of relative cost, it may be of interest to compare this to the more commonly used index of program expenditure per capita of the general population. Table II and Figure 3 do this and show that while the two indexes are related the relationship is a long way from a strong or stable one. Expenditure per capita is a poor predictor of cost per CYP and thus gives no guide as to relative efficiency of the programs. This, then, is a good argument for the use of cost per CYP as an evaluatory measure.

The Role of Foreign Aid

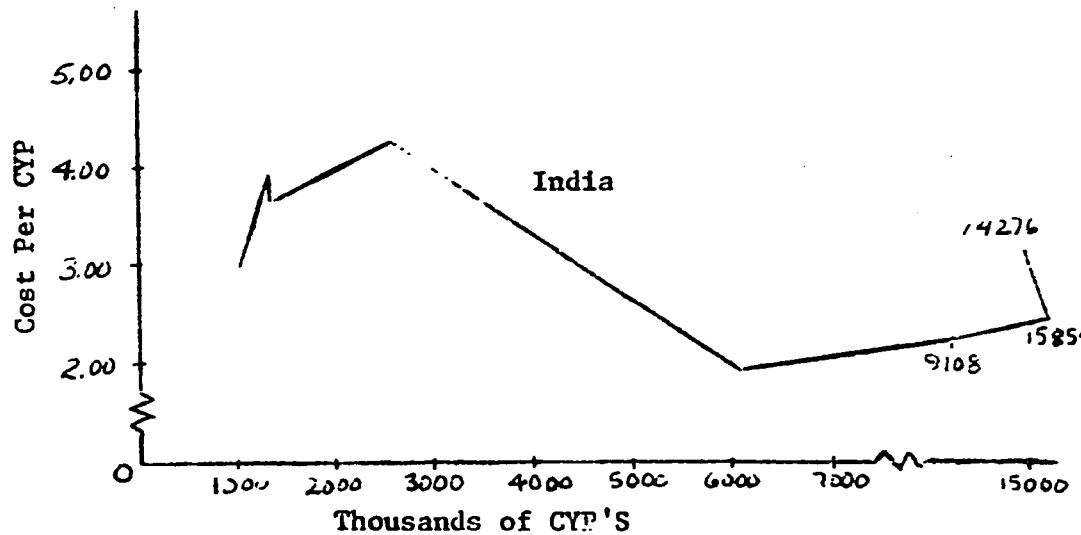
Table III presents total foreign aid (USAID plus all others) related to total program spending. Over time a considerable range of "relative dependence" is revealed. On the average India shows a relatively minor dependence on

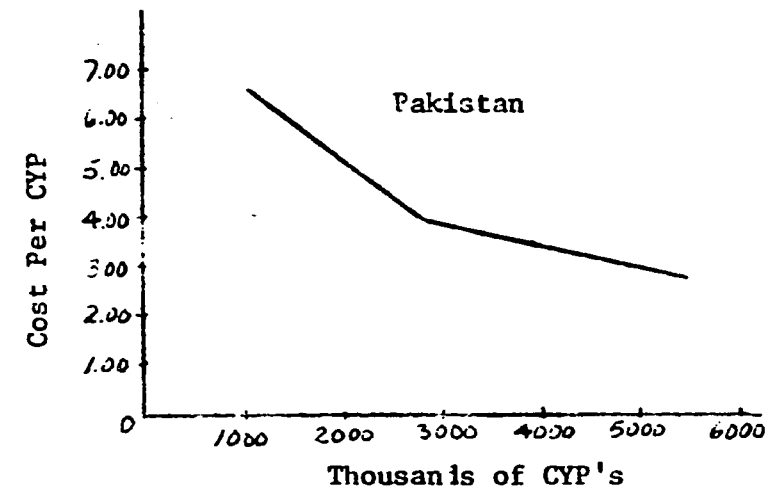
Table I

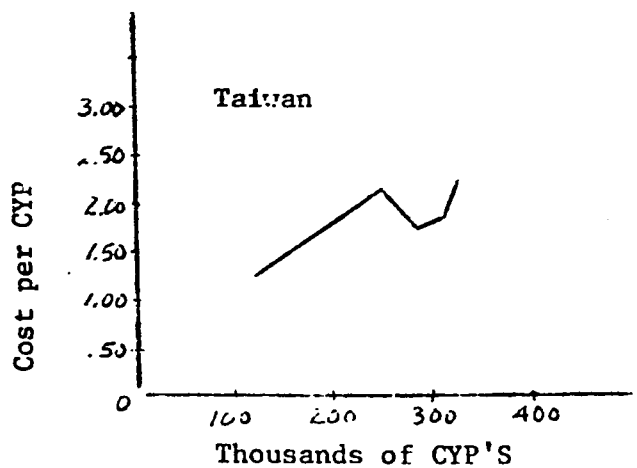
Costs and Output of Selected Family Planning Programs

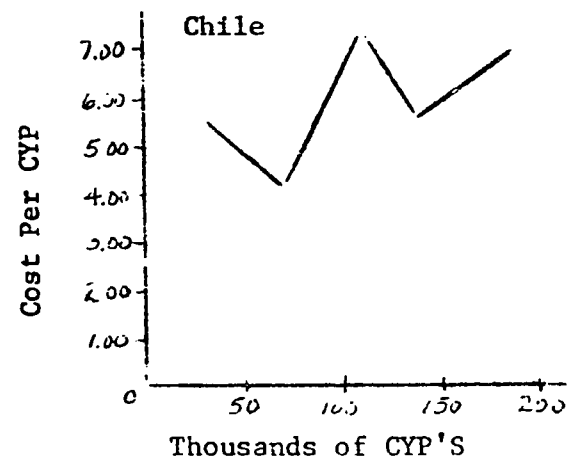
	Total Cost (thousands of U.S. Dollars)	Total Output (thousands of CYP's)	Cost Per CYP
India			
1961-62	3,069.	1,039.	2.95
1962-63	5,940.	1,515.	3.95
1963-64	5,511.	1,510.	3.65
1964-65	10,450.	2,478.	4.22
1965-66	11,825.	6,055.	1.95
1966-67	20,521.	9,108.	2.25
1967-68	39,810.	15,854.	2.51
1968-69	44,261.	14,276.	3.10
Korea			
1964	1,149.	691.	1.66
1965	1,450.	940.	1.54
1966	2,614.	1,344.	1.94
1967	2,804.	1,131.	2.48
1968	6,038.	926.	6.52
Taiwan			
1964	141.	115.	1.20
1965	501.	248.	2.13
1966	484.	283.	1.72
1967	461.	307.	1.84
1968	689.	325.	2.21
Chile			
1964	163.	30.	5.48
1965	302.	72.	4.18
1966	791.	109.	7.28
1967	766.	136.	5.62
1968	1,278.	184.	6.95
Pakistan			
1965-66	6,780	1,035.	6.55
1966-67	11,091.	2,808.	3.95
1967-68	15,434.	5,532.	2.79
Tunisia			
1968	826.	40.	20.00

FIGURE 1. COST PER CYP AND PROGRAM VOLUME FOR SELECTED PROGRAMS









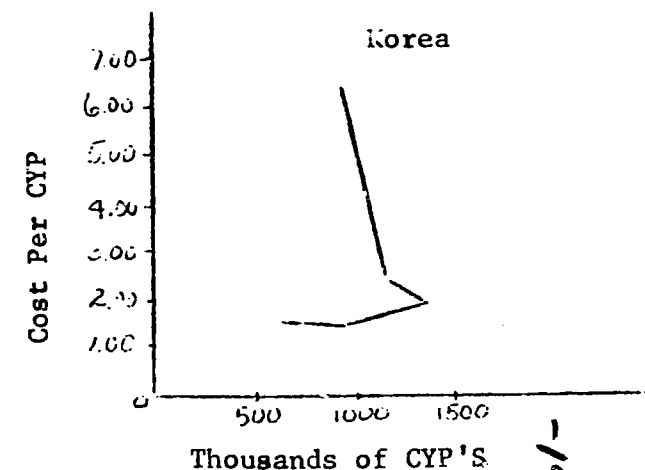


FIGURE 2. COST PER CYP AND PROGRAM VOLUME, ALL PROGRAMS AND ALL YEARS.

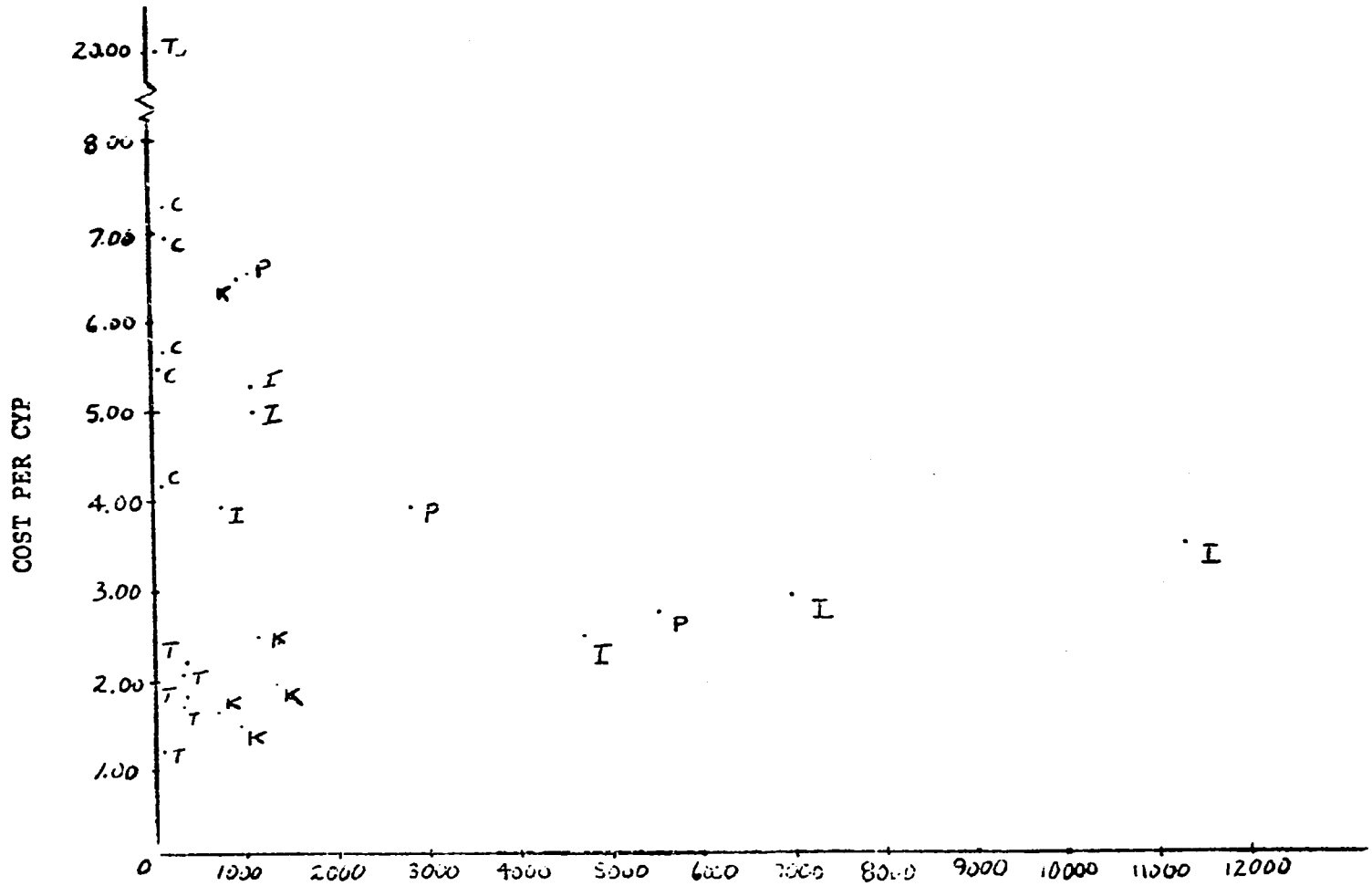


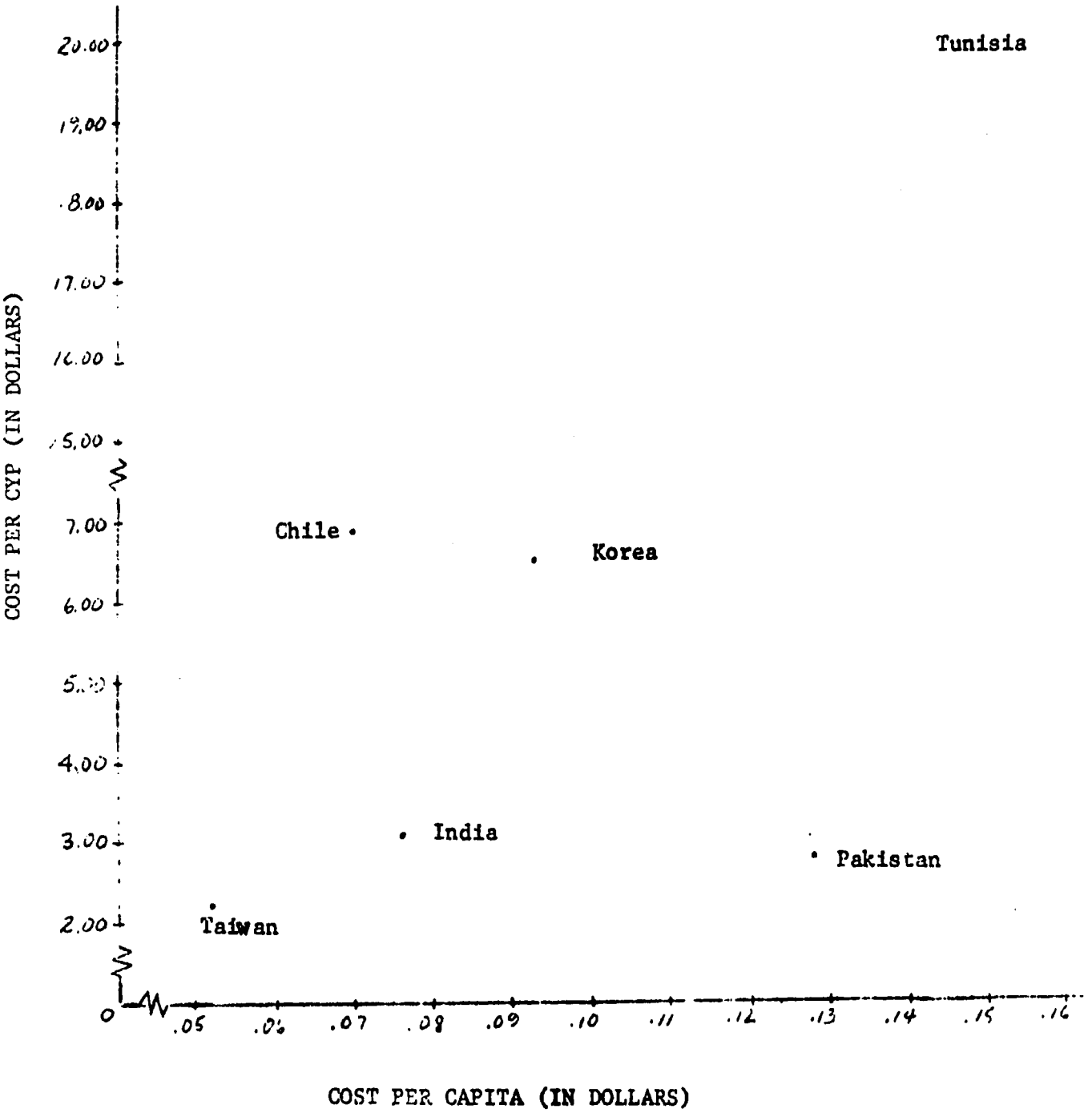
Table II

Measures of Relative Costs of Family Planning in Selected Countries*

	Cost Per CYP	Cost Per Capita
Tunisia	20.00	.16
Chile	6.95	.07
India	3.10	.08
Pakistan	2.79	.13
Korea	2.48	.09
Taiwan	2.21	.05

*Most recent year except 1967 for Korea.

FIGURE 3. VARIOUS MEASURES OF RELATIVE COSTS OF FAMILY PLANNING COMPARED



foreign aid especially the earlier period while Pakistan, Taiwan and Korea show foreign inputs consistently accounting on the average for between 20 and 30 percent of total resources. Chile shows a strong trend movement away from dependence on foreign aid but even so a greater average dependence than any other save the special single-observation case of Tunisia. In general, there seems to be some sort of convergence around a 20-30 percent figure for the share of total foreign aid. That is, countries which started above this level show a decline over time while countries below it have been rising in recent years. The most plausible explanation of this is that foreign aid tends to flow into programs to support particular functions and activities in all the programs being examined.

Table IV presents a percentage breakdown of how on the average total foreign aid was used and there is no one single pattern. In India and Pakistan contraceptive supplies (category 2) and vehicles and equipment (category 3) dominate. In Tunisia and Chile direct support of Salaries and other field staff expenses (category 1) and administration (category 6) emerge as important and this is also true in Taiwan. In general, with the exception of Chile, Analysis and Evaluation (category 7) and Research and Training (category 9) are consistently major categories for foreign aid spending.

Moreover, if one looks at the most recent years in these data also there is a convergence of sorts. That is, while use of foreign aid for category (1) (Salaries and Allowances) was important in Chile in the early years this has been less and less the case in more recent years. The same can be said of the use of foreign aid for category (6) (Administration) in Taiwan. Thus, in more recent years, the major objectives for which foreign aid from all sources to all the programs has tended to go has been:

Contraceptive Supplies (category (2))
Vehicles and Equipment (category (3))
Analysis and Evaluation (category (7))
Research and Foreign Training (category (9)).

Table III

All Foreign Aid as Percent of Total Financing of Family Planning Programs*
(Thousands of U.S. Dollars)

	Total Funds Available	All Foreign Aid	Foreign Aid As Percent of Total
India			
1961-62	3,069.	350.	11.4
1962-63	5,940.	350.	5.9
1963-64	5,511.	350.	6.4
1964-65	10,450.	426.	4.1
1965-66	11,285.	551.	4.9
1966-67	20,521.	673.	3.3
1967-68	39,810.	5,113.	12.8
1968-69	44,261.	10,790.	24.4
Korea			
1964	1,149.	345.	30.0
1965	1,450.	486.	33.5
1966	2,614.	558.	21.3
1967	2,804.	715.	25.5
1968	6,038.	3,893.	64.5
Taiwan			
1964	142.	142.	100.0
1965	528.	173.	32.8
1966	487.	152.	31.2
1967	564.	167.	29.6
1968	721.	230.	31.9
Chile			
1964	163.	104.	63.8
1965	303.	240.	79.2
1966	791.	291.	36.8
1967	766.	266.	34.7
1968	1,278.	278.	21.7
Pakistan			
1965-66	6,780.	1,000.	14.7
1966-67	11,091.	2,789.	25.1
1967-68	15,434.	2,993.	19.4
Tunisia			
1968	826.	572.	69.2

* Includes USAID plus all private aid.

Table IV

Foreign Aid-Supported Spending by Major Purpose Selected National Family Planning Programs*

	India	Pakistan	Tunisia	Chile	Korea	Taiwan
Direct						
(1) Salaries & Allowances	-	-	14.9	49.3	2.1	15.8
(2) Contraceptive Supplies	28.9	28.9	5.1	14.1	2.9	1.3
(3) Vehicles and Equipment	24.5	25.3	36.1	3.1	47.3	2.2
(4) Training of Field Workers	-	-	3.3	-	10.4	1.4
(5) Other Field Expenses	-	-	-	.5	2.2	3.4
Indirect						
(6) Administration	4.8	-	14.6	18.7	3.3	19.2
(7) Analysis and Evaluation	21.1	17.4	24.0	4.7	3.8	22.6
(8) Publicity and Education	-	-	-	1.7	6.8	7.6
(9) Research and Training	19.3	28.4	1.9	5.5	19.7	22.0
(10) All Other Indirect Costs	1.3	-	-	2.2	1.4	4.5
	100.0	100.0	100.0	100.0	100.0	100.0

* Averages over entire periods covered.

Table V

Relative Importance of
Foreign Aid in National Programs*

Ranking	Country	Relative Importance of Foreign Aid	Two Most Important Foreign Aid Expenditure Items
1)	Tunisia	69.2	Vehicles and Equipment; Analysis and Evaluation
2)	Taiwan	31.9	Analysis and Evaluation; Research and Training
3)	Korea	25.5	Vehicles and Equipment; Research and Training
4)	Chile	21.7	Salaries and Field Staff; Administration
5)	Pakistan	19.4	Contraceptives; Research and Training
6)	India	24.4	Contraceptives; Vehicles and Equipment

*Most recent year except 1967 for Korea.

This is in line with our earlier suggestion of an average level of foreign aid's relative share in total spending. In other words these functions play a certain, rather predictable role in total program activities and, to the extent that foreign aid supports mainly these functions, then foreign aid's role is also pretty well determined. This, however, to repeat, will tend to be the case with "mature" programs which have been underway for some time.

Not too surprisingly, in several countries - India, Korea, Pakistan - a sharp increase in foreign aid's relative importance can be noted in most recent years, reflecting the growing role of USAID under the changed guidelines.

Pattern of Expenditure

Table VI presents the total spending for the countries concerned broken down by major categories of spending. (We work with averages for the time periods involved, thus suppressing some minor but interesting movements in the relative proportions within some of the country programs: these are in any case discussed in the individual country chapters.)

The categoies employed here and in Table III represent a reconciliation of what was judged to be analytically best with what was feasible given the data available. No very startling trends emerge except that indirect expenses tend to be larger relatively speaking in the smaller countries. This could suggest that some of the research and evaluation functions could be pooled among several programs reducing overall spending on such purposes. There is also a relationship between foreign aid and some of the indirect items since the private foreign aid grants of Ford, Population Council or Rockefeller are often "tied" to action-research programs which fall into these categories.

Explanation of Differences in Unit-Costs

At the outset of this report we raised the question of what factors or forces might "explain" differences in cost per unit of performance among the family planning programs being reviewed. That such differences do exist, we

Table VI

Percentage Breakdown of Total Spending On Family Planning by Major Categories

	Tunisia 1968	Chile 1964-1968	Korea 1964-1968	India 1966-67 to 1968-69	Taiwan 1964-1968	Pakistan 1966-67 to 1967-68
Direct						
(1) Salaries & Allowances	24.8	20.6	31.1	40.5	51.1	44.5
(2) Contraceptive Supplies	4.4	9.4	6.1	10.0	1.6	16.3
(3) Vehicles and Equipment	23.4	2.9	20.4	28.9	2.9	6.8
(4) Training of Field Workers	.8	-	5.6	6.1	1.7	.3
(5) Other Field Expenses	6.2	27.6	5.2	-	3.4	5.1
	59.6	60.5	68.4	85.5	60.7	73.0
Indirect						
(6) Administration	18.4	34.4	15.6	2.2	7.9	8.6
(7) Analysis and Evaluation	18.4	1.7	3.2	-	14.3	1.8
(8) Publicity and Education	1.6	.6	3.7	8.4	6.4	3.6
(9) Research and Training	2.2	2.0	8.4	3.5	8.2	11.0
(10) All Other Indirect Costs	-	.8	.6	.2	2.3	2.1
	40.4	39.5	31.5	14.5	39.3	27.0

have now demonstrated but their explanation remains unclear.

Generally speaking, one can imagine several reasons for differences in cost per unit of output in family planning programs.

(1) Differences in the true nature of the output.

Our index of Couple-Years-of-Protection obscures the fact that one program may be an IUD-type program while another may be stressing conventionals. Differences in cost per CYP could arise on this count. Thus, imagine, for example, that an IUD insertion and a sterilization cost about the same (allowing for all indirect as well as direct costs). Now, suppose further that the women involved in the two cases are of about the same age. Then, clearly, the sterilization will produce more CYP's (now and in future) than the IUD to the extent that the retention period for the IUD is less than the period remaining for the sterilized woman before she dies, is widowed or reaches menopause. Since this is very likely to be the case, the conclusion will automatically become then that the cost per CYP of the sterilization program is lower than that of the IUD program.

(2) Differences in the input combinations used to produce any given output.

Even given that a program will be mainly an IUD program or mainly a conventionals program there may be different combinations of resources and inputs capable of producing the desired output. In general, the more purely clinical programs - the IUD, sterilizations - presumably require considerable inputs of highly trained medical personnel together with supporting institutions and hardware. To a large degree, the efforts to train mid-wives to insert IUD's or the resort to mobile clinics to avoid a full-blown rural health center system are efforts to get around this requirement. But, there are real limits to substitutability of other inputs. Since medical personnel and medical facilities are scarce in most developing countries, the IUD and other clinical approaches require as an input resources which are quite likely to be relatively expensive but will probably not vary much from one

program to another.

Conventionals and other non-clinical approaches, however, would seem to have slightly more variable coefficients relating inputs and outputs. Conventionals can be distributed and propagandized in any one of several ways. Where two programs, both stressing non-clinical methods, differ in cost per CYP it may well be because of a difference in the choice of input-combinations in the two programs.

(3) Differences in the Socio-Economic Settings of the Programs.

The cost of producing anything is partly dependent on its setting - on transport, on environmental health conditions, on skill and discipline of the labor force and so on. There is no reason to think that the same will not be true for family planning. Thus, all other factors equal, cost per CYP will probably be higher in a country with low urbanization, poor transport and low levels of governmental efficiency.

(4) Differences in the Motivation of Prospective Clients for Family Planning.

It is hardly a novel idea that the costs of a program will be related to its reception by the target population. All other factors equal, it may cost very little or substantial amounts to reach, motivate and bring into the program a couple. KAP Surveys to the contrary notwithstanding, we know very little about what determines motivation. Instead, in practice, we typically fall back on various surrogates - education, infant mortality rate, income - which have been found to be associated with reduced fertility performance in other countries. Thus, our working assumption would be that, all other factors being held constant, the females of a country with high female literacy and income, and low levels of infant mortality, would more easily be reached by a program than females of a country with the opposite characteristics. If true, this would also show up in terms of the cost of achieving a unit of program output.

(5) Differences in the Efficiency and Managerial skill among programs

Again drawing an analogy to ordinary economic theory and experience, even

where all other conceivable factors are held constant, differences in cost structures develop among firms in the same industry. So may also be the case with "producing" family planning outputs. A lay man, a charismatic administrator may be able to produce output at a lower cost per unit than some other administrator, and this would presumably show up as a final "residual" difference in costs per unit even after all the other possible "explainors" had been controlled for.

Interaction among Possible Causes of Unit-Cost Differences

In practice all five of the above possible sources of differences in unit-costs will interact and it will be difficult to separate one from another. Our reason (1) - Differences in the nature of the Program will be easy to look at explicitly. But, our reason (3) - socio-economic factors affecting costs as such - and reason (4) - Differences in motivation of prospective clients - interact and overlap. About all that can be done analytically is to see what part of any given difference in program unit-costs can be "explained" statistically using various indicators of socio-economic development. Some of the differences thus "explained" may be a cost-of-production difference, while some may be a measure of the responsiveness of the target populations.

Similarly, our reason (2) - Differences in input combination employed - and reason (5) - Differences in program efficiency - also clearly overlap and interact. In the end, we can consider both of them as being responsible for any residual unit-cost differences which remain when other factors have been taken into account.

Thus, in what follows, we will look: first, at the nature of the programs; second, at the socio-economic settings of the programs; third, at the residual differences in costs which remain. Given the small number of observations with which we work, our analysis must be qualitative and suggestive rather than rigorously quantitative. It may, nonetheless, be of some value.

Differences in Nature of the Programs

Table VII presents a picture of the relative importance of various contraceptive techniques in the programs under analysis. Apart from the differences in unit-cost, which is our main interest, some interesting conclusions emerge from these breakdowns. India,it appears, is operating basically a sterilization program while Taiwan is an almost completely IUD program. Korea, Chile and Tunisia are more truly "cafeteria" programs, and Pakistan seems to emphasize almost equally IUD's, sterilizations and conventionals.

Returning to the differences in cost per CYP presented in Table I above, these differences do not, in fact, seem very well related to differences in program "mix." The all-IUD program (Taiwan) is the lowest cost per CYP program ($2.21) but the next in terms of relative importance of IUD's is Chile with a relatively high cost per CYP ($6.95). India, the nearly 90 percent sterilization program, shows moderate costs per CYP ($3.10) but Pakistan, which has a much lower relative importance of sterilizations and where conventionals are important, shows a lower cost per CYP ($2.80). The highest cost per CYP program is Tunisia and here IUD's and sterilization together account for nearly 90 percent of total CYP's.

Thus, the impact of the nature of the program or its "mix" is uncertain and if there are really differences in the real cost of "producing" a CYP via IUD's compared to sterilizations or conventionals, these differences are evidently overshadowed in our cases by other factors.

Differences in Socio-Economic Setting

As explained above, differences in per unit costs may arise for two reasons both of which are rooted in differences in the socio-economic setting of the programs.

Table VIII is a first start towards a socio-economic analysis of differences in unit costs of producing family planning. It presents the costs

Table VII

Relative Importance of Various Contraceptive Techniques in Selected Family Planning Programs

	Korea, 1968		Tunisia, 1968		India, 1968-69	
	CYP's	Percents	CYP's	Percents	CYP's	Percents
Abortions	-	-	2,211	6.	-	-
IUD's	592,925	64.	23,253	58.	1,195,320	9.
Sterilizations	119,662	13.	12,075	30.	12,480,480	87.
Traditionals	194,640	21.	1,131	3.	600,000	4.
Orals	18,903	2.	1,100	3.	-	-
Total	926,130	100.	39,770	100.	14,276,300	100.

	Pakistan, 1967-68		Taiwan, 1968		Chile, 1968	
	CYP's	Percents	CYP's	Percents	CYP's	Percents
Abortions	-	-	-	-	-	-
IUD's	1,889,888	34.	309,175	95.	139,718	76.
Sterilizations	2,001,068	36.	-	-	19,335	11.
Traditionals	1,641,184	30.	-	-	683	-
Orals	-	-	16,436	5.	24,150	13.
Total	5,532,140	100.	325,611	100.	183,886	100.

per CYP related to such common indicators of development as income per capita, the level of urbanization, literacy, etc. (Many other variables were also examined but found less useful as "explainers.") The results are interesting but at first glance puzzling.

In general, the highest cost-per-CYP observations (column 1) are in those countries with the highest income per capita (column 2), percent urban (column 3), calories per capita per day (column 5) and literacy (column 4). The lowest cost countries do not, however, show the lowest value for these socio-economic indicators but rather values which overlap the highest observations or fall between them and the lowest socio-economic level represented by the middle two countries on the cost scale. This, the relationship between costs per unit and these indices seems to be a U-shaped one, an unexpected result.

Looking at the next several indices (columns 6, 7 and 8), however, we get another picture. For costs per unit are directly related to the Infant Mortality Rate, to Number of Persons per Physician and also to Kilometers of Roads per 100 Sq. Kilometers of the country. Thus, the higher the IMR, the higher the cost per CYP· the fewer the physicians per capita, the higher the cost per CYP; and the fewer the miles of highway the higher the cost per CYP.

The implication of the foregoing is clear. While income per capita, urbanization, calories per capita or literacy are good measures of development for some purposes they do not necessarily measure all facets of socio-economic change. The infant mortality rate, availability of physicians and coverage of the transport network in our small sample do not appear to be adequately represented by the other development indices.

It seems that our data suggest that while certain minimum levels of income, urbanization and literacy are <u>necessary</u> conditions for a moderate-cost family planning program they are not also <u>sufficient</u> conditions. In other words, you cannot accomplish much in their absence but having them is no

Table VIII

Costs Per Unit of Family Planning
Relation to Indicators of Socio-Economic
Development*

	(1) Cost Per CYP	(2) Income Per Capita	(3) Percent Urban	(4) Adult Literacy Rate	(5) Calories Per Capita Per Day	(6) Infant Mortality Rate	(7) Inhabitants Per Physician	(8) Kilometers of Roads Per 100 Sq. Kilometer
Chile	6.95	450	70.0	84.0	2,682	120.	2,100	6.7
Tunisia	20.00	180.	40.0	30.0	2,205	130.	8,990	5.7
India	3.10	90.	17.0	28.0	2,000	75.	5,790	15.5
Pakistan	2.79	90.	13.1	19.2	2,050	72.	6,200	10.3
Korea	2.48	120.	30.0	71.0	2,060	25.	2,710	13.0
Taiwan	2.21	190.	25.0	54.0	2,360	20.	2,470	44.0

* Cost per CYP is 1968 except in Korea where 1967 is used. Other data are most recent year available with nothing earlier than 1965. Data are from 1969 UN Statistical Yearbook and various sources.

guarantee of success.

Similarly, where other things are equal, the infant death rate, the availability of medical services and the effectiveness of the transport network emerge as the socio-economic factors having the greatest impact on program costs per unit. These factors, in turn, would seem to relate to basic motivation to accept family planning since the inverse relationship between infant death rates and total wanted pregnancies is well established; to capacity of the program to mobilize enough medical services to move ahead quickly; and finally to simple accessibility of the population.

In other words, a country with relatively high income, literacy and urbanization but higher infant mortality and poor transport in the country (Chile) may emerge as a relatively high cost country. A country with only moderately high income per capita, literacy and urbanization and very unfavorable infant mortality, availability of physician services and transport network in the countryside may emerge as a very high cost country indeed (Tunisia). Most favorable of all are those areas with good overall development - literacy income per capita, urbanization - and also favorable factors relating to family planning - infant mortality, transport, physicians per capita, (Korea, Taiwan). Our other countries fall in between.

It must be understood that the foregoing is a suggestive, even speculative, discussion of these possible relationships. Our "sample" is too small for statistical reliability.

Differences in Cost per Unit Due to the "Efficiency" Factor

As explained previously, "efficiency" differences among programs as a possible explanation of differences in costs per unit may arise either because of superior management or leadership (a superior input to one program but not to the others) or because of a non-optimal choice of program inputs by one program in producing some given level of output. This factor is even harder to pin-down statistically unless we are first able to control for the other

possible sources of variation in unit costs - program "mix" and socio-economic setting. Due to the very small sample with which we are working we have not attempted this in any rigorous statistical sense.

However, our qualitative impression is that this residual or "efficiency" factor looms rather large in explaining the observed differences in cost per unit. In particular in the case of the extremes of our range of costs per unit the socio-economic factors simply do not seem powerful enough to account for the observed cost differentials. Program "mix" was at best an uncertain factor and we are thus lead to our conclusion concerning the likely importance of the qualitative, "efficiency" factor.

Major Conclusions

On the basis of the foregoing data and the implications drawn there from, we summarize our major conclusions as follows:

(1) There are apparently very real differences among various national programs in terms of their costs per unit of performance. The range in costs per unit among the several programs is considerable but most programs seem to fall in a range from about $2.00 to $8.00 per CYP. Any observations falling outside these limits can be considered extreme.

(2) Costs per unit are not strongly related to program volume. In some cases, there is a definite negative correlation, in others a midly positive one. Thus, the most reasonable expectation would be that, except for programs just starting or ones aiming at truly large-scale operations, costs per unit of output will be constant.

(3) Socio-economic differences do not seem correlated with the cost differences in the way in which one would expect - that is, higher literacy, greater urbanization and industrialization being associated with lower costs per unit. But a low infant mortality rate, an effective transport system and a favorable ratio of physicians per capita do seem associated with lower unit costs.

The type of program, in terms of the contraceptive techniques emphasized, seems of uncertain effect on cost per unit of output. Some IUD programs are relatively low cost, while others are not. A program with a large conventional component compares well to more purely clinically-based programs. Finally, allowing for these other factors, it seems clear that a large unexplained residual difference in costs per unit remains. It can only be assumed that this is a rough measure of differences in program "efficiency". Our sample is too small to permit any meaningful statistical generalizations about these relationships, however.

(4) A substantial part of the budgets of the programs go for indirect (or overhead) spending. Research, analysis and evaluation make up a very large part of this indirect item. This is particularly true in the smaller, heavily foreign-aided countries where, in fact, much of the aid is earmarked for such purposes. The typical program has, nevertheless, evidently put 60 to 70 percent of its budget into direct expenses of the program and the overwhelming share of this into field staff, salaires and allowances, including travel.

(5) The role and relative importance of foreign aid varies greatly. In some programs local contributions have been almost token, especially in the early stages, while in other programs foreign aid has played only a minor role until very recently.

Foreign aid's relative importance in nearly all the programs reviewed, however, seems to show a tendency to reach roughly 20 to 30 percent of total expenditures for mature programs. Except in early stages or very special cases, foreign aid seems to end up going mostly for contraceptive supplies, vehicles and equipment, analysis and evaluation and research and foreign training.

(6) Even allowing for the differences among national programs already referred to, the data do still give one a picture of many similarities and even regularities among the countries studied. The generation of the "output",

called family planning does seem to have some underlying structure and technology which is similar whereever one encounters it.

Appendix I

Statistical Requirements for Continued Cost-Effectiveness Analyses of Family Planning Programs

Introduction

After delving into the statistical data available from various family planning programs around the world, one comes away impressed with the volume of information which is available. This is undoubtedly a reflection of the emphasis, already noted, which most programs have placed on research, analysis and evaluation. Nevertheless, there are gaps and there are also problems concerning the form and manner in which the statistics are compiled or stored. In this note, we propose to discuss the most serious shortcomings of the data which our project encountered, on both the output and the cost sides, and to make some recommendations for remedying these problems.

Output Data now Available

By and large the output data are very well recorded and tabulated. This tends especially to be true of IUD's and sterilizations. Indeed, typically countries are now collecting routinely, even if only on a sample basis, considerable socio-demographic information (age, parity, etc.) on IUD clients and persons sterilized. Such data is obviously required for the calculation of Couple-Years-of-Protection (either on an achievement or a prevalence basis). These data should also be routinely tabulated for the smallest manageable geographical or administrative sub-unit to facilitate disaggregative, sub-national analysis of costs and performance.

Data on non-clinical methods are less readily available and also less detailed. Where orals or condoms have been recently, explicitly introduced into the program, total volume distributed is likely to be known. However, data on the distribution network - on initial stocks of such supplies in the "pipeline", and on changes in such stocks over time - are virtually non-existent. Similarly, data on the socio-demographic characteristics of users of non-clinical

methods are also typically not collected. Yet, to refine the number of "couple-months" (or Couple-Years) into actual number of continuing, contracepting couples we need to be able to relate supplies distributed to couples using the supplies and also to know something about the demographic characteristics of these couples.

If one wishes to go one step further and concern oneself with the "use-effectiveness" factor of contraception, then an additional data requirement is added. For while IUD's or sterilizations can for all practical purposes be assumed to be 100% effective in preventing pregnancy, the same is not true for orals, condoms and other so-called conventionals. The CYP formula we have been employing assumes implicitly that 13 pill cycles or 100 condoms distributed generate one CYP. Actually they do with ideal or perfect use. In addition to wanting to know something about the number of couples using the 13 pill cycles or the 100 condoms we also should know some about their efficiency in using the method, or, in other words, their experience. Perhaps 100 condoms does not prevent a birth but only half a birth on the average. Thus, more detailed, follow-up type information is required on all non-clinical contraceptors.

Finally, referring back to our discussion of the so-called "substitution problem," data is needed on the volume of private non-program contraceptive production, distribution and use prior to the beginning of a program. It can probably be assumed that all clinical methods will be absorbed into the program once it is launched but this need not be the case with conventionals. Data on domestic production and/or imports for non-official distribution and sale should be obtained. The pre-program situation could possibly be imputed from a detailed KAP study providing it asked for details on methods employed. The continuing data on private sales of conventionals would give some indication of the impact on this market of the establishment of the program.

Summary of Output Data Required

Thus, the "ideal" output data one would like would include the following:

(1) IUD's inserted, sterilizations performed, by geographical sub-unit by months with age of wife, age of husband, number of children, number of years of marriage, and other relevant demographic information.

(2) Non-clinical contraceptives distributed by geographical sub-unit by month, with estimates of initial "pipeline" stocks and changes therein for each time period.

(3) Estimates of numbers of (a) continuing, and (b) new couples using each non-clinical method by sub-unit, by month, with the above listed demographic characteristics for these couples.

(4) Estimates of use-efficiency ("failure rate") of the couples using non-clinical contraceptives, by geographical sub-units, by months, with the above listed demographic characteristics of the couples.

(5) A picture of the pre-program level of contraceptive practice, by method, by geographical sub-unit with above listed demographic characteristics for the couples involved.

(6) A continuing picture of non-program production, distribution and sale of non-clinical contraceptives, together with information on the couples using these supplies.

Item (5) could be furnished by an initial KAP Survey. Items (1) and (2) are already typically tabulated in regular reports from clinics and suppliers. Item (3) could be obtained, on a sample basis, also by the supply outlets from its customers. Item (4) would require either a special household-type survey or a lengthy sub-section in some periodically - repeated KAP Survey. Since periodically - repeated KAP Surveys are probably a good idea for other sorts of evaluatory indexes of program performance this is probably the best approach. Item (6) could also be obtained with the same periodically-repeated KAP Survey.

Cost Data now Available

Availability of cost-input data on family planning programs is considerably more uneven at the moment. In general, expenditures are recorded, reports

to some headquarters are made, and it is possible to obtain an overall picture but it is much more difficult than it need be.

It is not possible to be as specific with respect to what data should be tabulated or in what form when dealing with costs and inputs but we will present at least some guidelines. This is not to suggest that many of the guidelines are not already followed in many instances.

Suggested Guidelines for Tabulating Costs

(1) The notion must be accepted by responsible officials of a consolidated financial picture, a "sources and uses" picture of the entire program. Even if for other purposes distinctions such as "budgetary versus extra-budgetary" or "program versus non-program" are employed, these administrative conventions should not obscure the need for a single consolidated financial picture for a true understanding of the program. This must include foreign as well as domestic inputs, grants as well as loans, advisory personnel as well as operating personnel.

(2) A careful separation must be made of the several stages involved in the budgetary process: namely, authorization, obligation, and expenditure. This is especially crucial in handling foreign aid for which the lag between these stages may be long and unpredictable. In general, for cost-analysis, funds should be charged to that time period when the major program impact was felt, regardless of budgetary conventions.

(3) The expenditures must be reported on a uniform basis for all agencies, departments and groups (private as well as public). In general, the following would seem to be desirable categories to employ:

Direct

(1) Wages and Salaries of full-time field personnel.
(2) Fees, etc., paid to part-time field staff.
(3) Bonuses, etc., paid to clients.
(4) Travel and per diem to all staff
(5) Contraceptive supplies (by type).

(6) Vehicles.
  (a) Purchases.
  (b) Maintenance.
(7) Other Equipment.
(8) Training of field staff.
(9) Buildings and fixed facilities.
  (a) Purchase.
  (b) Maintenance.

Indirect

(10) Administrative personnel.
  (a) Full-time.
  (b) Share of joint charge from other programs.
(11) Analysis and Evaluation.
  (a) Personnel.
  (b) Equipment, etc.
(12) Propaganda.
  (a) Personnel.
  (b) Printing, etc.
  (c) Radio, TV, etc.
(13) Informational Programs.
  (a) Health education.
  (b) Follow-up programs.
(14) Research.
  (a) Bio-medical.
  (b) Demographic.
(15) Fellowships and Foreign Training.
(16) Other Indirect Expenses.

It must be understood that this list is suggestive not definitive. Were cost data on this basis available a considerable amount of interesting analysis could be undertaken. In many cases, it is in fact available but buried at the local level because routine reports lump the items together into broad, relatively unhelpful categories.

(4) Expenditures for local, geographical sub-units must be routinely recorded and sent to the central analysis and evaluation unit. Even though a monthly or quarterly basis has not proved feasible for this study, such a detailed time-wise presentation of the data still seems desirable.

Summary

The greatest addition to presently available output data is information on utilization of conventionals and also information on their use-efficiency. On the cost side, there is a need for a consolidated overall financial picture covering all resources deployed in programs and presenting reasonable detail on

how funds are used, and also precisely where and when. The greatest change required from present budget practices is a fairly simple reorganization of categories with the thought in mind that the data will be used for cost analysis as well as for administrative and accounting purposes.

Appendix II

Sources of Statistical Information

In the interest of brevity and readability we have made only a minimum use of footnotes and references in the body of the report. In any case, the cost-input data exists for the most part only in unpublished form and there are properly speaking no sources to "cite".

What we will do in this section, however, is give at least some guides to such published or otherwise available material as does exist for these programs and to indicate what other sources, official and otherwise, were drawn upon in this study.

Taiwan (Republic of China)

Summaries of the Program

(1) Robert G. Potter, Ronald Freedman and Lien-Ping Chow, "Taiwan's Family Planning Program," Science, Vol. 160 (24 May 1968), pp. 848-853.

(2) T.C. Hsu, and L. P. Chow, "Taiwan, Republic of China," in Bernard Berelson, et al (editors), Family Planning and Popualtion Programs, Chicago, 1966, pp. 55-70.

(3) Bernard Berelson, "Family Planning Programs in Taiwan," in N. Muramatsu and P. Harper (editors), Population Dynamics, Baltimore, 1965, pp. 87-98.

(4) Taiwan Population Studies Center, Family Planning in Taiwan, Republic of China, 1965-1966, Taichung, October 1966.

Progress Reports

For Taiwan (and Korea) excellent annual progress reports have been printed in Studies in Family Planning in the first part of the following year. The specific citations in this series are as follows:

(a) "Korea: Summary and Conclusions," Studies in Family Planning, No. 2, Dec. 1963.
(b) "Taiwan: The Taichung Program of Pre-Pregnancy Health," Studies..., No. 1, July 1963.
(c) "Korea and Taiwan: Two National Programs," Studies..., No. 6, March 1965.
(d) "Korea and Taiwan: The Score for 1966," Studies..., No. 19, May 1967.
(e) "Korea and Taiwan: The Record for 1967," Studies..., No. 29, April 1968.
(f) "Korea and Taiwan: The Record for 1968," Studies..., No. 40, April 1969.

There is also a Joint Report, usually issued quarterly but sometimes more or less frequently, in newsletter form by the Taiwan Population Studies Center, The Taiwan Provincial Department of Health, and the Planned Parenthood Association of the Republic of China. A monthly newsletter, Field Report, is also issued by the Population Council's Taiwan - East Asia field office. Both these reports contain considerable detail on program accomplishments.

Budget Data

The statistical information underlying our tables come from: (1) the files of the Population Council Far East Office, (2) the audit reports of the JCRR, (3) the records of the Taiwan Population Studies Center, and (4) Population Council, New York.

Korea

Summaries of the Program

(1) Jae Mo Yang, "The National Family Planning Program in Korea," in Muramatsu and Harper (op. cit.), pp. 77-86.

(2) Youn Keun Cha, "South Korea," in Berelson, et al (op. cit.), pp. 21-30

(3) John A. Ross and Oliver D. Finnigan III, "Within Family Planning - Korea," in Demography, Vol. 5, No. 2 (1968), pp. 679-689.

Progress Reports

As noted above, a series of excellent annual reviews of both Korea and Taiwan have appeared in Studies in Family Planning. (The specific citations are given in the discussion of sources for Taiwan above.) The Planned Parenthood Federation of Korea publishes, in English, an Annual Report covering its share of the program. A Monthly Report in newsletter form is issued by the Population Council's Korean office and this contains most recent available performance data. The Ministry of Health and Social Welfare also issues an Annual Report covering the program but this appears only in Korean.

Budget Data

Our cost data came from: (a) Reports and some unpublished records of the PPFK in Seoul, (b) the files of Population Council Seoul office, (c)

Reports and files of the MCH Section, Department of Health, Ministry of Health and Social Welfare, (d) Population Council, New York, and (e) USAID Seoul Project agreements and supporting documents.

Chile

Summaries of the Program

(1) Hernan Romero, "Chile," in B. Berelson, et al (editors), op. cit., pp. 235-248.

(2) Mariano Requena B., "The Problem of Induced Abortion in Latin America," Demography, Vol. 5, No. 2 (1968), pp. 785-790.

(3) Onofre Avendano, Anibal Faundes, and German Rodiquex-galant, "The San Gregorio Experimental Family Planning Program," Demography, Vol. 5, No. 2 (1968), pp. 836-845.

Progress Reports and Reviews

The Chilean Association for the Protection of the Family, the lay group in the program, issues a monthly Boletin, which however contains only limited statistical material. The monthly and yearly progress reports sent by this group to the Western Hemisphere Regional Office of IPPF in New York are a better source of both output-performance and cost data. These reports are unpublished, however.

Budget Data

Our cost and budget data came from: (a) the files of the IPPF, New York Regional Office, (b) Rockefeller Foundation, New York, (c) Ford Foundation, New York, (d) Population Council, New York, (e) personal communications with key program people in Chile.

Pakistan

Summaries of the Program

(1) Nafis Sadik, "Population Problems in Pakistan: Program and Policies," in Muramatsu and Harper, (editors), op. cit., pp. 27-34.

(2) Enver Adil, "Pakistan's Family Planning Programme," a paper for the International Conference on Family Planning, Dacca, January 28-February 4, 1969.

(3) Warren C. Robinson, "Pakistan's New Family Planning Experiment," Eugenics Quarterly, Vol. 13, No. 4 (Dec. 1966), pp. 316-325.

(4) The Family Planning Program's master "Scheme" is also valuable for an understanding of the scope of the program. See: Family Planning Scheme for Pakistan, during the Third Five-Year Plan Period, 1965-1970, prepared by the Ministry of Health, Labor and Social Welfare, government of Pakistan, Rawalpindi, 1964. Also: Proposals of the Family Planning Division for the Family Planning Sector during the Fourth Five-Year Plan, 1970-1975 ,prepared by the Family Planning Division, government of Pakistan, Islamabad, 1969.

Progress Reports

The program issues a monthly Report on the Working of Pakistan's Family Planning Programme, which gives much detail on performance. There is also an Annual Report on the Working of Pakistan's Family Planning Programme, by the Family Planning Division (formerly Council), in Rawalpindi, which contains some expenditures as well as performance data. The West Pakistan Evaluation and Research Center in Lahore (formerly the Medical-Social Research Project) also issues monthly and annual reports.

Finally, the National Research Institute of Family Planning in Karachi has sponsored and published the proceedings of four Biannual Seminars beginning in 1966 which contain a wealth of information pertaining to the program.

Cost Data

(a) The above cited Annual Reports contain some cost data. (b) District level data for 1966-67 were obtained (as noted in the report) from Lee L. Bean, et al, "Family Planning in Pakistan: A Review of Selected Service Statistics, 1966-67" (in two parts), Research Report No. 64, Pakistan Institute of Development Economics, January 1968. (c) District data for 1967-68 were obtained from unpublished tabulations. Similarly, expenditure data for Provincial Boards and breakdown on foreign aid came from unpublished reports and files. (d) Other data came from USAID Karachi and Population Council, New York.

India

Summaries of the Program

(1) B. L. Raina, "India," in B. Berelson, et al, (editors), op. cit., pp. 123-134.

(2) S. Chandrasekar, "How India is Tackling Her Population Problem," Demography, Vol. 5, No. 2 (1968), pp. 642-650.

(3) W. W. Freymann, "India's Family Planning Program: Some Lessons Learned," in Muramatsu and Harper, (editors), op. cit., pp. 13-26.

Progress Reports

An annual Report (on the Fiscal Year basis) is issued by the Ministry of Health and Family Planning and Works, Housing and Urban Development, New Delhi, one chapter of which is devoted to a review of the family planning program. The Director of the Central Family Planning Institute, New Delhi, also publishes an annual Director's Report but this is concerned more narrowly with the CFPI's activities. The monthly Newsletter of the Demographic Training and Research Center in Bombay contains useful information and is a good reference source for other more obscure studies. The monthly newsletter of the Department of Family Planning, Centre Calling, is not much help for evaluation or research.

Program Reviews

There have also been occasional "evaluations" of the Indian Program by various expert groups. In the process of these, useful statistical material has occasionally been assembled. These include:

(a) Evaluation of the Family Planning Programme, Report of the Panel of Consultants, Ministry of Health, government of India, 1965. (Undertaken at the instance of the Programme Evaluation Organization, Planning Commission.)

(b) Report on the Family Planning Programme in India, prepared for the government of India by a United Nations Advisory Mission appointed under the United Nations Program of Technical Assistance (Report No. TAO/IND/48), United Nations, Commissioner for Technical Assistance, 20 February 1966.

(c) Indian Economic Policy and the Fourth Five-Year Plan, Vol. IV., Family Planning, International Bank for Reconstruction and Development - International Development Association- (Report No. AS-122a-Asia Department), March 7, 1967.

Budget Data

In the end our data came from (a) the annual reports cited above, (b) unpublished reports, records and internal documents from the Department of

Family Planning and (c) USAID, New Delhi.

Tunisia

Summaries of the Program

(1) Amor Daly, "Tunisia" in B. Berelson, et al, (editors), op. cit., pp. 151-162.

(2) George Brown, and Amor Daly, "Evaluation of Tunisia's Family Planning Program," paper at Session B-13, World Population Conference, Belgrade, 30 August - 10 September 1965.

(3) Warren G. Povey and George F. Brown, "Tunisia's Experience in Family Planning," Demography, Vol. 5, No. 2 (1968), pp. 620-626.

Progress Reports

The Ministry of Public Health issues an annual report (in French) which reviews family planning also. Untitled mimeographed monthly statistical reports on performance are issued by the Family Planning Secretariat and the monthly reports of the Population Council Field Office in Tunis are also valuable for output data.

Budget Data

Virtually all cost and expenditure data come from USAID Tunis reports or project agreement. Some of these in turn are based on reports or records with the files of the government of Tunisia.

Other Sources for Entire Project

This project has also obtained statistical information on grants, expenditures (and in some cases performance) from private communications with:

(a) Western Hemisphere Regional Office, International Planned Parenthood Federation.
(b) The Rockefeller Foundation.
(c) Ford Foundation.
(d) The Population Council.
(e) The Swedish International Development Agency.
(f) The Pathfinder Fund.
(g) The Agency for International Development, U.S. Department of State.

Appendix III

A Selected Bibliography on Measuring, Analyzing and Evaluating Costs and Outputs of Family Planning Programs

(1) Adil, Enver, "The Use of Statistical Guides and Measures of Effectiveness in Determining Government Policy for Influencing Fertility," World Population Conference, Belgrade, 1965, United Nations, 1966.

(2) Agarwalla, S. N., "Need for Cost-Benefit Analysis in Family Planning," prepared for ECAFE Expert Group on Assessment and Acceptance and Use-Effectiveness of Family Planning Methods, Bangkok, June 1968.

(3) Bean, Lee L., and William Seltzer, "Couple Years of Protection and Births Prevented: A Methodological Examination," Demography, Vol. 5, No. 2, 1968, pp. 947-972.

(4) Chandrasekaran, C., and M. W. Freymann, "Evaluating Community Family Planning Programs," in Sheps, Mendell, and others (editors), Public Health and Population Change, Pittsburgh, University of Pittsburgh Press, 1966.

(5) Chow, L. P., "Evaluation Procedures for a Family Planning Program," in Bernard Berelson, et al (editors), Family Planning and Population Programs, Chicago, University of Chicago Press, 1965.

(6) Demeny, Paul, "The Economics of a Vasectomy-Bonus Scheme: A Comment," Economic Development and Cultural Change, September 1961.

(7) Freedman, Ronald, "Some Issues in the Evaluation of Family Planning Programmes," document prepared for ECAFE Expert Group on Assessment of Acceptance and Use-Effectiveness of Family Planning Methods, Bangkok, June 1968.

(8) Green, H. A. J., Aggregation in Economic Analysis, London, 1967.

(9) Kantner, John F., and F. F. Stephan, "Evaluation of Programme Objectives in Family Planning," World Population Conference, Belgrade, 1965, op. cit.

(10) Keeny, S. M., "Budget and Timetable," in Berelson et al (editors), op. cit., pp. 363-372.

(11) Kirk, Dudley, and D. Nortman, "Population Policies in Developing Countries," Economic Development and Cultural Change, Vol. 15, No. 2 (Part I), January 1967.

(12) Lee, Byung Moo, and John Isbister, "The Impact of Birth Control Programs on Fertility," in Family Planning and Population programs, B. Berelson, et al (editors), Chicago, University of Chicago Press, 1966.

(13) Mauldin, W. Parker, " Measurement and Evaluation of National Family Planning Programs," Demography, Vol. 4, No. 1 (1967), pp. 71-80.

(14) Mauldin, W. Parker, "Births Averted by Family Planning Programs," Studies in Family Planning, No. 33, Aug. 1968.

(15) Potter, Robert G., "Estimating Births Averted in a Family Planning Program," Fertility and Family Planning: A World View, (L. Corsa, R. Freedman, S. Behrman, editors), Ann Arbor, 1968.

(16) Prest, A. R., and R. Turvey, "A Survey of Cost-Benefit Analysis," in Surveys of Economic Theory (prepared for the American Economic Association and the Royal Economic Society), Vol. III., New York: St. Martins Press, 1966.

(17) Robinson, Warren C., and David E. Horlacher, "Economic Benefits of Fertility Reduction," Studies in Family Planning, No.39, March 1969.

(18) Ross, John A., "Cost Analysis of the Taichung Experiment," Studies in Family Planning, No. 10, February 1966.

(19) Ross, John A., "Cost of Family Planning Programs," in Bernard Berelson and others (editors), Family Planning and Population Programs, Chicago, University of Chicago Press, 1965.

(20) Schultz, T. Paul, The Effectiveness of Family Planning in Taiwan, Rand Corporation, P-4069, April 1969.